

A
COMPENDIOUS SYSTEM

OF

MIDWIFERY,

CHIEFLY DESIGNED TO FACILITATE THE

INQUIRIES

OF THOSE WHO MAY BE PURSUING THIS BRANCH OF STUDY.

ILLUSTRATED BY OCCASIONAL CASES.

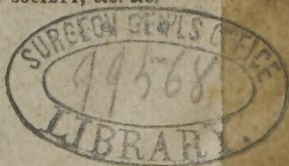
WITH THIRTEEN ENGRAVINGS.

SECOND EDITION, WITH ADDITIONS, &c.

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States of America, A. D. 1826, WILLIAM P. DEWEES, M. D. of the said
District, hath deposited in this Office the Title of a Book, the right whereof he
claims as Author, in the words following, to wit:

"A Compendious System of Midwifery, chiefly designed to facilitate the In-
quiries of those who may be pursuing this branch of study. Illustrated by
occasional Cases. With thirteen Engravings. Second Edition, with Additions,
&c. By Wm. P. Dewees, M. D. Adjunct Professor of Midwifery in the Uni-
versity of Pennsylvania, Member of the American Philosophical Society, &c. &c."

In conformity to the Act of the Congress of the United States, intituled, "An
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the times therein mentioned,' and extending the benefits thereof to the arts of
designing, engraving, and etching, historical and other prints."

D. CALDWELL, Clerk of the
Eastern District of Pennsylvania.

TO
PHILIP S. PHYSICK, M. D.

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA, ETC.

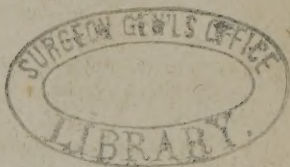
MY EARLY AND FAITHFUL FRIEND,
THE SPLENDOUR OF WHOSE PROFESSIONAL REPUTATION
IS ONLY EXCEEDED BY
THE PURITY OF HIS PRIVATE CHARACTER,
THIS WORK,

THE RESULT OF MY INQUIRIES, OBSERVATIONS, AND REFLECTIONS,
ON AN IMPORTANT SUBJECT,

IS AFFECTIONATELY INSCRIBED, BY

WM. P. DEWEES.

Philadelphia, Sept. 20th, 1824.



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Obstetrics

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INTRODUCTION.

IT has often been declared, that labour, being a natural act, it does not require the interference of art for either its promotion or its accomplishment; and, consequently, that when this becomes necessary, it only forms an exception to the rule. This view of the subject has had many followers; and has, from its influence, retarded, more perhaps than any other circumstance, the progress of improvement in this most important branch of medical science. It so entirely comported with the theories of the fastidious admirers of nature; it so completely coincided with the feelings of those whose supineness made them averse from inquiry; so effectually apologized for ignorance; and so plausibly extenuated the evils arising from neglect, or the want of the proper and judicious application of skill, as to secure in its favour by far the greater portion of the practitioners of Midwifery.

An error in premises must almost necessarily lead to error in deduction; hence the too exclusive reliance on the powers of nature, to overcome every obstacle connected with parturition—hence the almost total disregard of the first and most important principles in the art of midwifery. These errors originated in ignorance, and were perhaps at first excusable from this cause; but how reprehensible do they become now, since the powers of nature are better calculated, and the resources of art better understood! In what light, then, should we view writers, who still inculcate such doctrines—teachers who make the whole art of midwifery consist, in doing nothing?

Were the constitutional powers of the system; the physical conformation of the pelvis; and the size of the child's head, always and undeviatingly the same; were the most favourable presentation of the child; the best construction, and the most

healthy play of the powers concerned in this operation, never to be assailed by accident, or complicated by disease,—the opinions of those who contend for the supremacy of unassisted nature, would deserve much, and perhaps exclusive attention. But, as it is too well known, that this never has, nor ever can be the case; I must insist, that the powers of nature have their limits; and that the interference of art sometimes becomes absolutely necessary.

I am very far from wishing to be understood, that I advocate the indiscriminate interference of art, during the progress of a healthy labour—it is the very reverse of my opinion, and of my practice; I wish merely to insist, that nature is not competent to all exigencies; for in very many instances, when she is permitted to proceed without interruption, and is eventually able to effect her object, the sufferings of the patient might have been most probably very much abridged, by the judicious interposition of skill. Of this, from long experience, I am entirely convinced.

If this be true in the most healthy or practicable labours, how much more important does the judicious and timely application of adventitious aid become, when it is well known, that the deviations from healthy power and structure, are almost constant in their occurrence, and almost infinite in their variety. It is the knowledge of these aberrations, and the mode of obviating them when necessary, that emphatically declare midwifery to be a science—for it has, and must have, its principles; principles, that must not only be known in the abstract, but constantly employed; and it is the happy application of the fundamental rules of this science, that makes one practitioner superior to another.

I trust my last assertion will not be considered gratuitous: for if there be a difference in the skill of practitioners, it can only arise from a more perfect acquaintance with the rules which should govern; the extent of experience; and the justness of deduction. But does not this declare there is something more to be learnt, than the bare exercise of patience? What practitioner has ever been eminently successful, who has neglected the first principles of the art? He may have been extensively

employed, and tolerably lucky, (for it is nothing more,) without a correct notion of either the structure of the pelvis, the mechanism of labour, or the powers of the uterus; but will he be qualified to act where the first is faulty; the second obstructed; or the third impaired? would he not, in most instances, where either of these conditions obtained, wait in vain for the all-sufficient exertions of nature?

Experience, however necessary and important, is not alone sufficient; a correct foundation must be laid, by the study of first principles; and, with even this the progress must be slow; since variety in labour, is so multiplied. It is only by a happy and well balanced generalization, that the practitioner can arrive at principles; and it is but by judiciously acting upon these, that he can be extensively useful. I may safely appeal to the candour of almost every practitioner, whether he has not admitted to himself, that, had he been better acquainted with principles at a previous period of practice, he could not have procured, in certain cases, either a speedier termination, or a more fortunate issue—I am sure he will answer in the affirmative.

Too much importance can easily be attached to experience alone; and though I consider it a *sine qua non* to the successful exercise of the profession, yet it becomes only decidedly useful in difficult cases, when it is based upon the fundamental principles of obstetrics. Without an acquaintance with these, every practitioner must act empirically; and this, to the too frequent destruction of human life. If he be ignorant of all that is essential to be known of the well formed and diseased pelvis; or unacquainted with the various ways the head may pass through it, he will be totally incompetent to act, when there is any material deviation from the healthy economy of labour; he may rashly suppose there is no alternative but in the use of the crotchet, where a little address might have rectified the error in presentation. Or he may negligently and reprehensibly wait for the successful operation of nature, until his patient expire, where nothing but the judicious and prompt interference of art could have saved her from an untimely grave: in a word, there is no error into which the man of mere experience may not run.

In making an estimate of the value of experience alone, I must admit that many pursue the safer plan in submitting the case to nature ; for I confess that, in many cases of desperate appearances, she successfully surmounts the difficulties that menace her ; but this is only submitting to a choice of evils : while the well instructed practitioner would triumph over them, and spare nature the hazardous conflict. That in many instances we should be the silent observers of nature, is unhesitatingly acknowledged ; but I must insist, and I am persuaded I shall be supported by every well-instructed accoucheur, that it requires no less judgment to determine when we should be so, than when it is proper to offer assistance, or to take the business entirely out of her hands.

But the decisions of ignorance do not always result in an entire reliance upon the powers of nature ; they sometimes, and this but too frequently, end in the contrary extreme—in this case there is an overweening desire to aid her efforts ; and their ill-directed endeavours, but too soon eventuate in a destructive subversion of her powers. To this we must attribute the very many instances of injury, which take place in the hands of ill-instructed practitioners. Who has not witnessed a labour, which if let alone would have been but an ordinary one, as regards either duration or severity, converted into one of great hazard, and protracted duration ? Can such mischievous ignorance be too severely reprehended, or could it be too severely punished ? What has not that man to answer for, who shall permit a fellow creature to die, when a little address or knowledge might have saved her ; or, what is perhaps still worse, who shall absolutely destroy her, by ill-judged, and rude manœuvres, under the specious pretence of relieving her ?

Besides, the peculiar situation of our country, imposes a necessity upon every medical student, to become well acquainted with the theory of midwifery ; for every one almost must practice it, if he pursue the object for which he is educated. A change of manners, within a few years, has resulted in the almost exclusive employment of the male practitioner. This was mainly effected by a conviction, that the well-instructed physician is best calculated to avert danger, and surmount dif-

ficulties; but how ill is this confidence repaid! a confidence which costs females, so severe a struggle! Should they submit their future welfare, nay, their lives, to an ignorant pretender, what security can they have, that they shall escape, without having entailed on them a permanent derangement of organ, or the perpetuation of a harassing, and loathsome disease?

In whatever point of view we regard this subject, it must be highly interesting to the philosopher and the philanthropist; shall it be less so, then, to the physician who should be both, and who is more immediately concerned in its influence? Shall it be a matter of indifference to him, who has almost the control of the future comfort and happiness of perhaps an extensive population, and who shall become, as it were, the arbiter of the lives of thousands of individuals? A man of very loose morality, shudders at the idea of a single murder; yet an ignorant practitioner of midwifery, may feel no "compunctious visitations of conscience" for a hundred!

I hope to be credited, when I declare, that the present work was not undertaken, without due deliberation upon the responsibility attached to such an enterprise; and that my aim most honestly was, to be useful—I have endeavoured to make my experience available to the interests of humanity; and, should I fail to instruct, I feel a confidence, I shall not dangerously mislead.

In the arrangement of my materials, I have ventured to depart from common usage, in treating of the various objects belonging to the subject; it is the method I have pursued for nearly thirty years in teaching; and to me it appears the most natural. That is, I bring under one view all that may belong to any particular labour, or class of labours—whether natural, and to be trusted to the powers concerned in the operation; or complicated, and requiring a departure from this rule; or when essentially bad. I make all the modes of treating it under the various circumstances which may affect it, follow each other without interruption.

Generally speaking, I have followed Baudelocque's distribution of subjects, but not rigorously; and to him I hold myself

indebted for nearly all I know : or, at least, his masterly manner of treating every thing connected with this branch of medicine, has enabled me to comprehend at once, the seeming intricacies of obstetrics, and to profit by bed-side experience. I cannot too earnestly recommend the study of his works to the practitioner, as well as the student of midwifery, who may not have profited already by his genius, and his long, and well-tried experience.

I occasionally, in the course of the present work, differ from this great man ; but when I do, it is doubtingly ; and only after an examination of my own experience has produced a conviction, that it is correct so to do ; accompanied however, at the same time, by a regret, that I am forced to the alternative.

I have added Plates, to represent the different positions of the head, that no embarrassment might follow from mere description. These I hope will prove as acceptable, as I am persuaded they will be useful. And I have added a Chapter on "Arm and Shoulder Presentations," &c.

A

COMPENDIOUS SYSTEM
OF
MIDWIFERY.

CHAPTER I.

SECTION I.—*Of the Pelvis.*

1. THE complete knowledge of the pelvis, both in its healthy and diseased state, is essentially necessary to the successful practice of midwifery. Had more attention been paid to acquiring an acquaintance with its natural, and its deranged dimensions, by those who profess to practice this important branch of medicine, we should have had fewer instances of gross mistakes, and, of course, fewer victims. Without understanding the pelvis well, it is impossible that any one can safely give assistance, where either the operation of turning, or the application of the forceps is required, to terminate the labour; nor can the mechanisms of the various presentations be understood in their most simple forms, without a thorough knowledge of it. We hope then we shall be excused when we say, that no man should be trusted to practice obstetrics, who is ignorant of this important assemblage of bones.

2. The pelvis is that structure which is situated below the last lumbar vertebra, with which it is by one of its surfaces articulated; and above the superior extremities of the thigh bones, with which it is connected, by means of the acetabula. It is composed, properly, but of four bones, in the adult state,

viz. on its posterior part, by the sacrum and coccyx; and on the lateral and anterior parts, by the ossa innominata. But, in treating of this structure, it is useful and proper, to consider each of the constituent parts, as composed of several, to which appropriate divisions and names have been given; we shall therefore pursue this plan; as it has both propriety, and utility, to recommend it; and first, of

SECT. II.—*The Sacrum.*

3. This bone has been sometimes called the false vertebræ, because it is a kind of continuation of the true; and because, in the fœtal state, it may be divided into five portions; the union of these five pieces can readily be detected, in adult age, by four transverse seams. Its general figure is triangular or pyramidal; the base of which is upwards, and connected to the last lumbar vertebra by a cartilaginous intervention. The apex of the triangle or pyramid is below; and has united to its extremity, the coccyx, by means of cartilage. It may be divided into four surfaces; namely, an anterior, a posterior, and two lateral surfaces: its anterior surface is smooth and concave; while its posterior is very rough and convex; its anterior face is smooth, that no obstacles may be offered, or abrasions take place, by the passage of the child's head through the cavity of the pelvis; its posterior is studded with processess, or eminences, to give greater security, and surface, to the various muscles that originate, and that are inserted on it; as also, to afford greater firmness of connection to the many ligaments which aid in its union with the ossa innominata. Its lateral surfaces are rough or scabrous; and they are covered in the recent subject with cartilage, by means of which they are united to corresponding surfaces, offered by the ilia. This bone is pierced on each side by four holes, which transmit the sacral nerves. There is also on its posterior portion a canal, along which the spinal marrow is continued.

4. The manner in which the sacrum is set into the ossa innominata, is well calculated to give firmness and security, to its position; as it acts in some measure, as a key-stone does to

an arch; this arises from two peculiarities of form: the anterior part of the bone is broader than the posterior; consequently, enters like a wedge between the ossa innominata; this enables it to sustain without injury, any force that may operate from within, outwards: the superior portion is also broader than the inferior; and of course, is placed precisely analogous to the key-stone of an arch, by which it is enabled to support without yielding, the superincumbent weight of the body, &c. We cannot fail to remark, how admirably this arrangement gives stability to the whole of the pelvic circle.

5. The union of the last lumbar vertebra with the base of the sacrum, is permitted to take place in such manner as to look over, and into the superior opening of the pelvis; so as to form a promontory; and hence, is called the projection or promontory of the sacrum.

6. The length of this bone is usually from four inches, to four and a half; its breadth is about four inches. Its thickness, if measured from the middle of its base anteriorly, to the extremity of the superior spinous tubercle on its posterior face, is very constantly two inches and a half; and we are informed by Baudelocque,* that this measurement is so constant, that he did not find it vary a line in between thirty and forty pelves, the greater part of which were deformed. The concave form of this bone gives a hollowness to the greater part of its length; the depth of this in a well-formed bone is about half an inch.

SECT. III.—*The Coccyx.*

7. This appendage to the sacrum is also of a pyramidal form, and is about an inch and a quarter in length; like the sacrum itself, it resembles an inverted pyramid; its base being united with this bone by intervening cartilage: it is formed of three bony portions, whose connection with each other is readily observed by the transverse ridges which their union forms. Its connection is such, as to permit of a regressive motion; especially, in the earlier parts of life. Lateral motion

* System, page 18, par. 35.

is prevented by the insertion into the sides of this bone, of the coccygæi muscles; of parts of the levatores ani; and portions of the sacro-sciatic ligaments.

SECT. IV.—*The Ossa Innominata.*

8. The other portions of the pelvis are made up of the ossa innominata; they constitute the lateral, anterior, and inferior parts of this cavity. Each of these is divided into three distinct bones, by all the writers upon midwifery or anatomy; and there seems to be propriety in this separation; since, they were originally, or in the fœtal state, distinctly marked as independent bones, though not so clearly defined, in adult life; and, in the study of the pelvis it will contribute to a more precise notion of its form and combinations. The os innominatum is then composed of the ilium, ischium, and pubis.

9. The ilia form the highest lateral portions of the pelvis; and may with much propriety be considered, as belonging to, and constituting a part of the abdomen, as of the pelvis properly so called; the ilium is the largest of the bones now under consideration—its superior edge is nearly semicircular; is almost always tipped with cartilage; and is called the spine of the ilium. It reaches down, and, with certain portions of the ischium and pubis, forms the acetabulum. The external surface of this bone is a little convex, and has been named dorsum; while its internal face is concave; and is called costa, or fossa of the ilium. There are four processes usually described as belonging to the ilium; namely, two anterior, and two posterior, spinal processes.

10. The broad spreading part of this bone is divided from the lower portions, by a ridge which commences at its connection with the sacrum; runs forward, and joins with a similar ridge, sent by the os pubis—this sharp line, marks the upper, from the lower boundary of the pelvis; and is called, the linea ilio pectinea.

11. The ischium is the lowest of the three bones; and, like the ilium, forms a part of the acetabulum. From the posterior part of this bone, a sharp process runs backward, yet inclining

towards the cavity of the pelvis, so as rather to diminish its capacity; to this is attached, the internal sacro-sciatic ligaments; it then runs downward, and terminates in the tuber; into the inside of which, the external sacro-sciatic ligament is affixed. From this tuber a bony process is reflected, which joins the os pubis.

12. The os pubis is the smallest of the three bones which constitute, the os innominatum—its largest portion is employed in the formation of the acetabulum; it then diminishes in size; and stretches over, to meet a similar portion of the os pubis of the opposite side. It now becomes broader and thinner, and sends a branch downwards, to unite with the one reflected from the os ischium. The mode of union of these bones is such, as to leave a considerable space between them, and is called, foramen ovale, or foramen magnum ischii; which in the recent subject, is covered by a dense ligamentous membrane, and gives origin to the obturator muscles. Nerves and blood vessels are transmitted through this membrane, by appropriate openings.

13. The ossa innominata are joined at their posterior, and central portions, to the sacrum, by rough corresponding surfaces; these are spread over by thin cartilage; and the union secured, by strong appropriate ligaments. The anterior junction of these bones is called the symphysis of the ossa pubis; but the mode of union is different from that which connects their posterior portions—agreeably to Baudelocque, nature has paid much more attention to it, than to the other parts of the pelvis, by sending out, in addition to a proper quantity of cartilage, a number of short, but very strong ligaments, which give great security to the symphysis. Dr. Wm. Hunter has also given a very particular description of the mode of union of this symphysis, in the second volume of the Medical Observations and Inquiries.

14. As it is not in the power of every body to consult, and study the pelvis from the natural one, it is thought important to give a figure of a healthy, well constructed one, that an idea may be formed of its general form and connections; and though

not equally satisfactory with a preparation, it will nevertheless give a pretty correct notion of it. (See Plates I. and II.)

SECT. V.—*Of the Separation of the Bones of the Pelvis.*

15. It would seem, from what occasionally occurs in practice, that the bones of the pelvis may separate, notwithstanding the especial care that nature appears to have bestowed upon their union. This separation may take place in various degrees; from a simple relaxation of the connecting media, to an absolute separation. This accident may happen gradually, commencing almost with gestation, but not manifesting itself with much severity until after delivery; or it may occur suddenly, during labour; or just when it is about to be finished. Fortunately for the female, it is a disease of rare occurrence; especially, in this country; for we have met with but one decided case of the kind in the course of our practice.

16. Were we to yield to popular belief, we should be obliged to grant, that nature had kindly studied the comfort and safety of the female, by endowing the ligaments and cartilages which connect the different portions of the pelvis with a capacity to yield to the impulses of labour, that the operation might not only be less severe, but safer. This opinion is coeval with medical record; and it has been sustained, not only by ingenious reasoning, but by an appeal to observation. The respectable names of Pineau and Paré, are used in support of it among the more remote moderns; and Gardien in our own time, yields to a belief of its advantage. While Baudelocque, Denman, &c. see nothing in this supposed provision, but misery to the female who is the subject of it.

17. We may adduce the following reasons as conclusive against this relaxation being a natural provision—1. It is certain, so far as can be determined by the dissection of women who had died during, or immediately after labour, that the symphyses were very rarely found to have yielded in the slightest degree.—Baudelocque tells us, he sought for it twenty times in well-constructed pelves after laborious labours, as well

as in distorted ones, without meeting with scarcely one, which could remove all doubts of its existence.* 2. That it is not more frequent in the distorted, than in the well formed pelvis; were it an advantageous provision, it consequently, should have been more certainly observed. 3. Were it agreeably to an arrangement of nature, the means do not seem adequate to the end; as it would require that the extremities of the ossa pubis be separated one inch from each other, to gain two lines, or two twelfths of an inch, in the antero-posterior diameter of the superior strait; an increase but very rarely sufficient to do good in a contracted pelvis; and unnecessary in a well formed one; as the latter is almost constantly larger than is absolutely necessary in ordinary labours. 4. That wherever it has been ascertained to have taken place even in a slight degree, it has never failed to create either temporary, or permanent inconvenience; and, where extensive, the most serious evils, and even death, have followed.

18. Various causes have been assigned for this relaxation or separation of the pelvic bones: 1. Serous depositions in the cellular meshes, or interstices of the connecting media. 2. Tumefaction of the cartilaginous extremities of the ossa pubis. 3. The child in transitu acting like a wedge on the bony circle which bounds the upper strait. 4. Mechanical violences, as falls, blows, instrumental delivery, &c.

19. When mere relaxation exists, the symptoms, though pretty permanent, are not violent, as when there is a separation—a painful tottering walk, with a greater or less inability to stand, and more especially on both feet with equal firmness, mark very certainly this condition of the pelvis; and this is sometimes detected, even before labour. When it happens during labour, it is always attended with a painful sensation at the relaxed part, together with an inability to exercise the auxiliary powers concerned in this operation. This latter circumstance is worthy of notice; as it would seem to decide at once, that this yielding is not intended to benefit parturient women. When the injury is greater, and a real separation has

* System, Vol. I. par. 55.

taken place, it has been found, that it is by the destruction of the ligamentous tissue which connects the bones; and thus permits them to retire further from each other than mere relaxation would have done. When it is the symphysis of the pubes which suffers this accident, an entire separation of the cartilaginous epiphysis from the extremity of the os pubis takes place; for, agreeably to Baudelocque, no power is capable of breaking the ligamentous substance, which connects these two bones.

20. When this last condition obtains, it is usually followed by a melancholy train of evils—pain, inflammation, suppuration, caries, gangrene, and death.

21. The mode of treatment of these evils is reduced to great simplicity, though far from equal certainty—the indications are: 1. To reduce the parts as nearly as possible to their natural position, and to secure them thus as effectually as possible. 2. To obviate inflammation and its consequences, as far as may be practicable. 3. To relieve pain. 4. To give strength at a proper time to the system generally.

22. The first indication must be attempted by the proper application of bandages; and we are of opinion, that the simple calico roller is as effectual, as any of the more complicated machinery contrived for this purpose. It should be applied as high as the *cristæ* of the ilia, and a little below the trochanters of the thighs—its length should be so ample, as to secure a number of turns round the parts; and it should be drawn sufficiently tight to fulfil the object for which it is applied. The patient must be confined to a horizontal position, and employ her lower extremities as little as possible, at least in the beginning of the plan.

23. The second indication must be answered by blood-letting, leeching, or cupping; a very abstemious vegetable diet must be insisted on; and the most perfect quiet observed; the bowels should be kept free, but the effects of brisk purging, must be doubtful—this plan should be persisted in, until fever is subdued; then the course may be changed as in any other case, to a more generous diet, or invigorating regimen. If it

run on to suppuration, it must be treated throughout its consequences, as any other abscess should be.

24. The third indication must be fulfilled by the proper exhibition of opium in its various forms.

25. The fourth must be complied with by the judicious administration of tonics; as bark, sulphate of quinine, &c. &c. and by the daily use of the cold bath, where there are no contra-indications to render its use improper.

26. I believe I am justified in saying, that women may very effectually recover, when the symphyses have suffered from mere relaxation of their ligaments; but I fear we have but little reason to hope for an effectual cure, when the bones have been denuded of their cartilages, though the situation of the woman, by proper treatment, may be made comparatively comfortable.

SECT. VI.—*Of Deformity of the Pelvis.*

27. Every departure from the healthy dimensions of a pelvis, either by excess or diminution, is considered a deformity—I shall therefore first state the admeasurements of the different portions of this cavity, as generally agreed upon by writers, before I proceed to the consideration of such alterations as may justly be considered as deformity.

28. The diameter which runs from the superior part of the symphysis of the pubes to the projection of the sacrum, in a well formed pelvis, is rather more than four inches; while the one running from side to side, a little exceeds five inches; and the one traversing the pelvis diagonally, from behind one of the acetabula to the union of the os innominatum with the sacrum, is nearly the same. The first of these is called the antero-posterior diameter, or small diameter of the superior strait; the second, the transversal or great diameter; and the third the oblique, which is also properly considered, the great diameter. At the inferior part of the pelvis, or the lower strait, the measurements are nearly the same, but reversed—that is, the great diameter of this strait, runs from the inferior edge of the symphysis pubis, to the point of the coccyx; allow-

ing for the regressive power of this bone, and is usually rather more than four inches. The small diameter of the lower strait, is from the tuber of one ischium, to that of the other; and is about four inches. From this it will be seen, that the great diameter of the lower strait, traverses the great diameter of the superior strait, at right angles—this should be constantly borne in mind.

29. The deviations from the standard measurement, are so numerous, that it would be almost impossible to enumerate them, were that enumeration even useful; I shall not therefore descend to such detail, as it would fatigue the memory, without benefiting the understanding. I shall content myself with pointing out only such variations as shall be practically useful; or such as would require a difference in the mode of terminating the labour.

30. Deformities of the pelvis consist, first, in an excess of size in the diameters of this cavity; and, secondly, in a defect of them. The first presents scarcely any obstacle that is not surmountable by common means; as a precipitation of the uterus within the pelvis during gestation is the chief evil; occasioning some inconvenience or embarrassment to the flow of urine, the alvine discharges, and the locomotion of the woman; during parturition, a too rapid labour, threatening the escape of the uterus with its contents, from the os externum; and after the birth of the child, giving rise to a profuse and alarming hæmorrhage, by the uterus being too suddenly emptied, by the hasty expulsion of its contents.

31. The first of these inconveniences may be remedied by the application of a proper sized pessary—the second may be in a great measure prevented by a judicious management of the case during labour: 1. By forbidding the woman to bear down during pain. 2. By opposing the too rapid escape of the child, by pressing firmly against it with the fingers within the vagina, so as in some measure to counteract the influence of the pains, if the uterus be but in part dilated; and if fully dilated, by making a firm pressure against the perineum with the extended hand, so as to allow of the more gradual passage of the head. The third, may be at least very much diminished,

by brisk frictions upon the abdomen, immediately over the uterus; by a proper management of the placenta; and by the immediate exhibition of twenty grains of the powdered *secale cornutum*.

32. That departure from the standard pelvis, (28) which consists in a diminution of its principal diameters, is much more common, and much more serious in its consequences, than the one I have just considered: for the difficulties are increased in proportion almost to the departure from the healthy proportions, I have just enumerated.

33. The most common cause of the distortions of the pelvis, is rachitis, in infancy and childhood; and of malacosteon, in the more advanced periods of life. The former of these diseases hinders the proper consolidation of the bones; and thus exposes them to the influence of any pressure that they may be subject to, during its continuance. This being the case, it will be very readily understood how a pelvis shall receive injury while labouring under this disease; for on it is exerted, the weight of the body from above, when the child is either sitting or standing; this carries the projection of the sacrum still more forward; while the acetabula serve as fulcra to the lower extremities, when it is standing on its feet, and thus obliges the yielding bones, to retire towards the sacrum; hence, in some extreme cases, the approximation of these parts is such, as to leave but a very few lines of opening between them.

34. It rarely happens that every part of the pelvis is equally affected by rickets; and when it is not, the consequences will be different, both in degree, and in location. Sometimes, but one side will have suffered by this extraordinary disease; while the opposite, shall be free from all complaint, and preserve its original healthy conformation—at others, it is still more partial, and only affects one small part of this cavity—while again, every portion of it seems to participate in the derangement; then the consequences become most lamentably serious. The upper strait is generally the most injured; and that almost constantly in the direction of its antero-posterior diameter; leaving the transversal one as large, and sometimes

even larger, than usual; and the inferior strait sometimes without blemish.

35. When the inferior strait is defective, it is usually in the direction of its small diameter; this is effected by the approximation of the tubers of the ischia. It may also be faulty in several other ways—1. By the spine or spines, of the ilia looking inward too much. 2. By the symphysis pubis being too salient. 3. By this symphysis being too long. 4. By the processes of the ossa pubis running down in too perpendicular a direction. The healthy depth and form of the pelvis may be injured in various ways.—1. By the sacrum being too straight. 2. By its having too great a curvature. 3. By the coccyx looking too much upwards. 4. By this bone losing its regressive motion, by being ankylosed with the sacrum.

36. But as every degree of deviation does not render labour impracticable by the natural agents of delivery at full time, it will be well to fix the boundary, which the practitioners of Europe of the greatest experience, have affixed for it. It seems to be pretty generally conceded, that a labour cannot be successfully terminated, when there is less than three inches in the antero-posterior diameter of the superior strait. When a pelvis has three inches, or even three inches and a half in this diameter, the labour is rendered for the most part tedious, painful, and uncertain. We hear of some remarkable cases, however, of children born alive, when there have been but two inches and three quarters from the pubes to the sacrum; but these must constantly be regarded as exceptions to the general rule; and require, that it may take place, an unusual suppleness in the bones of the cranium. See Baudelocque, &c.

37. I have appealed above to the experience of the European accoucheurs for the datum, that labour at full time is impracticable, when there is less than three inches in the small diameter of the superior strait—I did this, because I believe, that the united experience of all the American practitioners, would not have led to a correct conclusion upon the subject; as the occurrence of deformity of pelvis in this country is so very rare, as not to have been even encountered by some

practitioners of pretty extensive experience; and as far as regards my own, I must declare, that, I have not met with extreme deformity in American women, three times in my life; and when it has occurred to such an extent, as to render labour impracticable by the natural powers, it has uniformly been with European women.*

38. Rickets, among the children in this country, is so rare, that practitioners of considerable practice have declared to me, they have not witnessed a case,—nor is this to be much wondered at; since, the remote causes of this disease are rarely present. Our population, even in our largest cities, is not crowded as in many of those of Europe; that we have many poor must be confessed; but even the poor enjoy, comparatively, a purity of air, and a wholesomeness of diet, unknown to many of the same class in Great Britain, or in many parts of the Continent. Very little, indeed, of our population, live under ground, or thickly crowded together. They are not impacted in confined manufactories, nor exposed to many of their deleterious operations. It is a rare occurrence, if even our beggars do not regale themselves daily, on more or less animal food; and certainly the population, which with us would correspond with the common manufacturers of Europe, are for the most part, sufficiently, nay, oftentimes, abundantly, supplied with it; hence, our general exemption from rickets, and of course our freedom from its consequences.

39. I have said above, (34) that when a pelvis is injured in its proper proportions, it is almost always in the small diameter of the superior strait.—Dr. Denman, however, declares it to be always in this diameter when this strait is faulty; and never in the direction of the great one; but in this I must differ from this experienced, and respectable practitioner; for it was my chance to meet with two instances of this kind in practice, as well as to be in possession of a natural pelvis, where the diameters at the upper strait, are reversed. Besides, Baudelocque admits the fact, though he says it is very rare.

* In this I am happy to find myself supported by the testimony of Professor James, in a note affixed to his edition of Burns' Midwifery. Note k. p. 35.

40. One of the cases alluded to above, occurred to me within a few days, and, as it is one of some interest from its rarity, I will relate it. On the 18th March, 1824, at 9 o'clock, A. M. I was called to Mrs.—, in labour with her seventh child.—She had been complaining during the whole of the previous night, but the pains did not become efficient in her estimation, until I was sent for—at this time the pains were very slow, but pretty forcing. Upon examining her per vaginam, the os uteri was found but little dilated, much tumefied, but not rigid. As there was no immediate necessity for my presence, I took my leave, desiring the nurse to send immediately, should any change take place before I intended to visit. I saw her several times during the day, although no alteration had taken place, in either the force or frequency of her pains. At about 10 o'clock, P. M. of the same day, I was again summoned, in consequence, as the nurse said, of her having had several pains nearer each other and “*smarter*.”—Upon a second examination every thing was found pretty much as it was in the morning—in the course of two hours more the pains became more frequent and urgent, and the os uteri was found more dilated, but still tumid; the head of the child still very high up, indeed was scarcely to be felt.—Two hours more were unprofitably employed, in the hope of the advancement of the head; thinking it probable that this did not take place because the membranes were entire, and apparently more than usually rigid, I ruptured them, and gave issue to a very moderate quantity of liquor amnii—the head did not yet descend as was hoped, though more within reach; and as the pains were now rather brisker, without manifestly advancing it, I was induced to examine into the cause of the delay more particularly. Upon a careful search being made as regarded the pelvis, it was found, that the point of the coccyx looked very much up into the pelvis, but that the projection of the sacrum could not be felt by the finger, but seemed to retire very much posteriorly; the sides of the pelvis could be easily traced at the upper strait; and on the anterior portion of the pelvis, immediately behind the symphysis of the pubes, two fingers could be introduced with their breadth between it and the child's head. The head of the child was

found to occupy completely the transversal diameter of the superior strait—it now occurred to me, that this was an instance of deformity, in which the transversal diameter was injured, and had procured an increase in the antero-posterior diameter; and that the head being placed diagonally above, could not enter the strait in this direction. With this in view, I introduced my hand, and placed the head in such manner as to make the posterior fontanelle answer to the pubes, and the anterior to the sacrum, and then withdrew it. Twenty grains of the ergot were now given, with a view to make the pains follow each other more quickly, as well as to render them more powerful—but the first pain after this, made the head descend to the lower strait, and four more delivered it—there was a little delay with the shoulders, but they followed the second or third pain.

41. This lady, though the mother of six children previously, never had had any untoward accident from this peculiar conformation—but her labours she represented as always having been very tedious and severe—four hours of extremely hard pains was the shortest period she had ever known, after she found herself what she called, “to be in earnest.”

42. During the existence of rickets, the child is constantly exposed to doing itself mischief by almost any position it may take; if it be placed on its feet, two powers are acting to this end; the weight of the body from above, and the pressure of the heads of the thigh bones from below; producing either moderate or extreme deformity, as the disease may be more or less severe, or as the patient may be more or less disposed to exert its lower limbs. In sitting, the weight of the body is sustained by the tubers of the ischia, and the point of the sacrum; hence, the latter may become too much curved, and the former be made to injure the length of the processes of these bones, as well as those of the pubes, and thus do mischief to the arch formed by these bones. If carried in the arms too constantly, the whole of the lateral portions of the pelvis may become injured by the pressure of the nurse's arms.

43. To guard against these evils, Baudelocque* suggests a

* System, page 61, par. 92.

very important practical direction; which is, to keep the patient as much as possible in a horizontal posture, and permit him to exercise his little limbs freely by sprawling upon a bed or mattress.

44. Injuries arising from malacosteon are more rare, but not less grievous than those from rickets—of the former I have never witnessed an instance. Mr. Burns* says the women of manufacturing towns are particularly obnoxious to it. It begins very soon after delivery, and very frequently during pregnancy; and is comparatively rare in women who do not bear children, and is always hurried in its progress by gestation. Hitherto, no remedy has been discovered capable of arresting its progress, or preventing its occurrence. He recommends to such women as are afflicted with it, to live “*absque marito*.”

45. The pelvis may also be injured by exostoses and tumours, which may give to either very difficult, or even impracticable labour—of the former I was witness to one case, which occasioned a rupture of the uterus;† of the latter I have never had the misfortune to meet with a single instance. They are occasioned in some instances by enlargements of the ovaria or glands; or they may consist of some adventitious substance within the pelvic cavity. They are said to be often moveable when of the ovarian kind; and fixed generally when of the other. They are found to have but cellular attachments; and are of easy removal, by making an incision through the vagina, and evacuating the contents of the tumour. There is a kind, however, which either adheres by a pedicle; or has a broad base; these can only be removed by deep cutting, and are for the most part, cartilaginous.

46. Mr. Burns has laid down the following practical rules for the government of those, whose ill luck may put them in possession of such cases: 1st. “Whenever the tumour is moveable it should be pushed above the brim of the pelvis at the commencement of labour, and prevented from again descending before the head of the child.”

* Principles of Midwifery. James’s edition, p. 34.

† See Essays on Subjects connected with Midwifery, p. 75

47. 2d. "That we should never permit the labour to be long protracted, but early resort to means of relief."

48. 3d. "As it is impossible to decide with certainty on the nature of the contents of many of these tumours, we should in all cases, where we cannot push them up, try the effects of puncturing with a trocar. If the contents be fluid, we evacuate them more or less completely; if solid, we find the canula, when withdrawn, empty, or filled with clotted blood; if fatty, or cheesy, the end of the tube retains a portion; and we are thus informed of its nature."

49. 4th. "When the size of the tumour cannot be sufficiently or considerably diminished by tapping, I am inclined, from the unfavourable result of cases where the perforator has been used, and from the severe and long-continued efforts which have been required to accomplish delivery, to recommend the extirpation of the tumour, rather than the use of the crotchet. There may, however, be situations where the incision ought to be made in the vagina; but these are rare. But extirpation cannot in any mode be proposed, if firm cohesions have been contracted between the tumours and vagina or rectum."

50. 5th. "If the extensive connections, extent, or nature of the tumour, or danger from hæmorrhage, prohibit extirpation, or the patient will not submit to it, and it has been early ascertained that tapping is ineffectual, I deem it an imperative duty to urge the perforation of the head, or extraction of the child, as soon as the circumstances of the case will permit."

51. 6th. "Much and justly as the Cæsarean operation is dreaded, it may with great propriety be made a question, whether, in extreme cases, that would not be less painful and less hazardous to the mother, than those truly appalling sufferings which are sometimes inflicted by the practitioner for a great length of time, when the crotchet is employed; whilst it would save the child, if alive at the time of interference. I am aware that it may be objected to this opinion, that in those cases, the tumour being softer than bone, the same injury will not be sustained as if the soft parts had been pressed with equal force, and for the same time, against the bones of a contracted pelvis, and that, in point of fact, recovery has taken place, though the

strength of two able practitioners were exerted and exhausted during several hours; but such an instance cannot establish the general safety of the practice."

52. 7th. "It is scarcely necessary for me to add, that there may be different degrees of encroachment, which admit of the safe and successful application of the forceps, and of this matter we judge by the size of the tumour, and the capacity of the pelvis."*

53. This subject is highly interesting to the accoucheur; and I would refer, for farther information, to the chapter from which the above is derived; and where a number of important references are made, to various authorities for cases, illustrative of the views of the gentlemen into whose hands they fell. It is a matter of much moment, in the event of meeting with such a case, that we should be well acquainted with the best mode of treating it; for, however rare such instances may be in this country, they certainly may occur; and to be ignorant of the resources of the art upon such an occasion, would be a reprehensible want of information.

SECT. VII.—*The Examination of the Pelvis.*

54. A variety of means have been proposed for measuring the pelvis, in order to ascertain the diameters of the various parts, concerned in the passage of the child; much ingenuity has been expended with a view to, and hope of, accuracy; but we have reason to fear that none hitherto projected, has attained this end. The pelvimeter of Monsieur Contouli is liable to serious objections; especially, as it affects to ascertain the state of the pelvis by developing itself within its cavity; for first, it is very difficult, as well as uncertain, in its application; 2d. It cannot be applied but to the upper strait, not being calculated for the measurement of the inferior strait; 3d. Its results are not by any means certain; as they have been known to vary several lines from the true measurement; 4th. It al-

* See Davis's Elements of Operative Midwifery, page 99, in which this subject is treated at some length, and some interesting views, and cases, are furnished.

ways excites pain, however skilfully applied, and excites action in the parts, so as to render the result very doubtful; 5th. It cannot be applied to young girls, to whom the knowledge of the state of their pelvis may be highly important. We must not, therefore, permit ourselves to be seduced by its ingenuity, and its apparent simplicity.

55. Baudelocque relies with much confidence upon the caliper; and declares, that its results are so uniform, as scarcely to present a line of difference when taken before the body is opened, and what is found after it has been subjected to the knife. I may add, my own few experiments upon the dried pelvis are in entire conformity with the assertions of this most valuable author. The mode of applying it is extremely simple: one of the lenticular extremities of the calipers is applied to the centre of the mons veneris, the other to the centre of the depression of the base of the sacrum, or a little under the spine of the last lumbar vertebra: having ascertained exactly the distance between these extremities, which is accurately done by means of the graduated scale attached to the instrument, you deduct from it three inches for the base of the sacrum, and the anterior extremities of the ossa pubis, if the woman be thin; and a little more, should the woman be fat. If this result be so uniformly accurate as Baudelocque declares, we need not want a more exact mode of ascertaining the opening of the upper strait. One fear, however, presents itself to us, that considerable error may be committed, if the extremities of the instrument be not accurately placed upon the points indicated; for I found upon the prepared pelvis, that a half inch higher or lower than the spine of the last lumbar vertebra, would affect the result; now, on the living subject, especially, if that subject be fat, it is not very easy to determine the precise spot. Again, I have seen dried pelvises, so peculiarly distorted, as to have the superior portions of the ossa pubes pressed almost close together; by which means, the symphysis pubis is thrown as much in advance, as these bones lost in their circular direction. In such cases the whole of the anterior, superior portion of the pelvis, not concerned in the extension of

the symphysis pubis, is made almost to touch the posterior, internal portion of the pelvis; consequently, the distance between the symphysis pubis, and the projection of the sacrum is greater than natural; while the superior opening of the pelvis, may not exceed half an inch; yet measuring by the calipers, would give several inches in the antero-posterior diameter.

56. We may also, with considerable accuracy, determine the antero-posterior diameter, by introducing the finger into the vagina, and placing its extremity against the most projecting part of the base of the sacrum, and allowing the radial edge of it to press against the arch of the pubes; marking the part of the finger which is immediately below the symphysis by the nail of the finger of the other hand; ascertain the distance between it, and its extremity, and it will pretty faithfully give the width of the small diameter of the upper strait: it must, however, be recollected, that a little allowance must be made for the oblique manner in which the finger descends from the sacrum to the symphysis of the pubes. Or we may ascertain with great accuracy *in time of labour*, the degree of opening at the superior strait, by introducing the hand into the vagina, and placing some fingers edgewise between the posterior part of the symphysis pubis, and the projection of the sacrum—the width of the fingers so employed, can easily be measured after the hand is withdrawn from the vagina.

57. We may very nearly assure ourselves of the extent of the small diameter of the inferior strait, by placing the woman in such a situation, as will give extreme flexion to the thighs; that is, make her squat: the tubers of the ischia can very readily be felt, if the woman be not very fat; ascertain the space between the finger placed on each tuber, and it will give you the width of the lower strait pretty accurately, especially if you deduct two or three lines for the thickness of the bones.

CHAPTER II.

OF THE CHILD'S HEAD.

58. IT is highly important to the well understanding of the mechanism of labour, that the various dimensions of the child's head be accurately known, as the strictest relation must exist between it, and the cavity through which it is to pass, that labour may not be obstructed. We must consider four principal diameters as belonging to the head: 1st. The oblique: this diameter runs from the symphysis of the chin to the posterior and superior extremities of the parietal bones, or posterior extremity of the sagittal suture; 2d. The longitudinal diameter: this runs from the centre of the forehead to the top of the occiput; 3d. The perpendicular: or the diameter subtending from the summit of the head, to the base of the cranium; 4th. The transversal, or the diameter which extends from one parietal protuberance to the other.

59. The second of these diameters will be constantly called the large diameter of the child's head; though strictly speaking, as regards measurement, it is not so: but accidentally becomes so when it shall present itself to the opening of the pelvis, as it constantly renders the labour untoward and tedious; while the fourth will constantly be considered as the small diameter.

60. These diameters are very often altered from their natural measurement during the progress of labour, by the pressure the head sustains in its passage through the pelvis; but all at the same time cannot either be diminished or increased. If the head be so strongly pressed as to diminish one diameter, it is sure to be increased in another; for instance, if the transverse diameter be diminished, the oblique is certain to be augmented; and when the head becomes much elongated, as it sometimes does, it is almost always in the direction of this last diameter. ^u

61. The extent to which this elongation in one direction, and

diminution in another, can be carried, must vary considerably in individual cases; owing to the degree of pliability of the bones; the extent of separation of the sutures, and the size of the fontanelles; the transverse diameter may be diminished, sometimes six or eight lines, while the same length may be gained by the oblique. This compression, however, must necessarily have its limit; and this should constantly be borne in mind; especially in the application of the forceps. If carried too far, there is a risk of fracturing the bones, wounding, or too strongly pressing the brain, or producing extravasation within its substance, or in the cavity of the cranium. Owing to the variety of hardness to which the bones of the fœtal head may arrive while in utero, there must necessarily be a variety in the risk the child runs from compression; one head suffering with impunity a loss of six or eight lines in one of its diameters, while half this might be fatal to another. The perpendicular diameter suffers in general but little, by the efforts of labour, however long continued, or strongly urged. The longitudinal diameter, when the head is well situated, is very little liable to compression, or alteration; but when it does, it must necessarily increase the head in the direction of its transverse diameter.

62. The child's head is composed, like that of the adult, of a number of bony pieces, but which are not united after the same manner: in the child's head the principal bones (and these, as regards our subject, are all we have to consider) are tied together by a firm ligamentous substance; the lines of union are called sutures, and are three in number; 1st. The sagittal suture, or the line of union from the anterior portion of the occipital bone to the root of the nose, passing between, and connecting the parietalia, and dividing, yet connecting the frontal bone, into two equal portions. 2d. The coronal suture; or the line which connects the anterior portions of the parietalia, and the posterior and semicircular portions of the frontal bone; and passes from near the superior portion of one ear to that of the other. 3d. The lambdoidal suture or the line serving to tie together the posterior portions of the parietalia, and the anterior portion of the occipital bone.

63. From this arrangement, it will be seen, that the sagittal suture traverses the coronal suture at nearly right angles; and leaves at the points of decussation an open space or fontanelle. This is not always of the same size, owing to the more or less perfect ossification of the bones—but we always remark in it the following circumstances, and which deserve to be well noticed, as they serve to distinguish it from the one next to be mentioned—there are always *four* bony angles, the edges of which are almost always tipped with cartilage, easily depressed and smooth; and very often, nay almost always, a space of considerable size, which is soft, smooth, and yielding; it can be distinctly felt by the point of the finger; this is called, the *anterior fontanelle*. The other fontanelle is formed by the termination of the sagittal, in the centre of the lambdoidal suture; and has but three bony angles; two by the posterior and superior points of the parietalia, and the central point of the occipital bone. The union of these sutures does not leave the same kind of opening as the one we have just considered; though sometimes it is considerable, but always much less than the anterior—for when the posterior is well marked, the anterior is constantly found to be larger. Besides the circumstance last mentioned, we frequently remark, that the edges of these bony angles are more complete in their ossification, and present to the point of the finger a serrated edge; and sometimes these little bony projections are so strongly marked, as to resemble small tooth-like processes; a character, which the edges of the anterior fontanelle never present; and which serves very certainly to distinguish it.

64. It sometimes happens, however, that the sagittal suture is continued through the middle of the os occipitis to its base; in such case, four bony points are offered to the touch; but their size and general character are so different from the anterior, as but very rarely to mislead.

65. We would earnestly recommend the study of the fontanelles and sutures, to the beginner of the practice of midwifery; he should very early accustom himself to touch, and distinguish them—it will lead him with certainty to the situation of the head as regards the pelvis; and constantly, and instantly

apprize him of any departure from the best position; and thus enable him, at a proper time, to effect any necessary change, with a view to render the labour safer, easier, and of more speedy termination. No man can with any certainty render assistance, where the head has departed from its proper route, who shall be incapable of distinguishing this aberration by the touch—he will either not distinguish the faulty position, and thus condemn the poor woman to protracted and unnecessary suffering; or he will blindly and rashly attempt relief, at the hazard of the lives of mother and child.

66. Many rely upon the position of the ear, for the knowledge of the situation of the head; but we object to this test: 1st. Because it may be so high in the pelvis, as to be out of the reach of the finger, when the fontanelles can be commanded; 2d. It may be so impacted in the pelvis, as to prevent the finger from passing to it; 3d. That, when felt, it may give, from some peculiarity of situation, a wrong impression of its position; 4th. When the head is still enclosed within the uterus, the finger cannot always be made to pass under the edge of it sufficiently far to reach the ear, though the os uteri be sufficiently dilated for all the purposes of delivery.

67. It is important, that the connection of the head of the child with the trunk, should also be well understood; otherwise the child may sustain much injury, if not death, from an ignorance of it—it must be constantly recollected, that the head cannot with safety execute a motion beyond a quarter of a circle, when it is freed from the pelvis, and the body retained within that cavity; nor can the cervical vertebræ more safely perform a greater sweep, when the head is detained, and the body without. A want of attention to this fact, I have great reason to fear, has caused the death of more children than I would dare to mention; especially, when they have presented by the breech, feet, or knees. I well recollect one instance of footling presentation, where the child was delivered, to the head—the midwife who had charge of the case, could not succeed in delivering this; I was sent for, and was obliged to give two entire turns of the body, before the twist was removed from the neck; I need not mention

the fate of the child. Fewer errors of this kind are committed when the head presents; not because the cases are not similar, under equal circumstances; but because, the shoulders are seldom long retained after the exit of the head; and consequently, there is less temptation to employ ill-directed force.

CHAPTER III.

OF THE GENITAL ORGANS.

68. OF the parts concerned in generation and delivery, some are detected without the use of the knife, while the others are only brought into view by dissection; hence, they have been divided into external, and internal. The external consist, of the mons veneris, the labia, the clitoris, the nymphæ, the meatus urinarius, the hymen, the orifice of the vagina, the carunculæ myrtiformes, the frænum labiorum or fourchette, and the fossa navicularis. The internal organs are, the uterus, the fallopian tubes, the ovaria, the ligaments, and the vagina.

69. Immediately over the symphysis of the pubis, and part of the insertion of the recti muscles, we find a prominence, which in the adult is covered with hair—this is the mons veneris; it consists of an accumulation of cellular, and adipose membrane—we know of no decided use of this part; and more especially, for being covered with hair. Apparently taking rise from this part, we find two bodies of similar appearance and texture, running parallel to each other, in a course, downward and backward—these are the labia pudendi; their external faces are covered with the common skin, and are studded like the mons veneris with hair; their internal surfaces are supplied with a beautifully fine and sensible membrane, of a florid colour in young subjects; and is abundantly supplied with glands, that constantly secrete a fluid for the especial protection of these parts against adhesion.

70. On the separation of the labia, several other parts are immediately brought into view; the clitoris presents itself, directly beneath the superior union of these bodies. It is made to consist of several parts; as two *crura*, which have their origin from the ossa ischia, and running along the branches of the ossa pubis, unite upon the symphysis, and form the *body* of this organ; these are connected by ligament to these bones, somewhat after the manner of the penis in males; its external termination, from its supposed resemblance, has been called its *glans*; but it is without urethra; being imperforate; a duplication of the internal membrane of the labia, forms its preputium. It has, like the male organ, two corpora cavernosa, and an intermediate septum; it has also the power of erection, through the agency of two erector muscles, which arise from the ossa ischia, and are inserted into the corpora cavernosa. It is supposed, but without sufficient proof, to contribute to sensual gratification. It is this part, when preternaturally enlarged, which has given rise to the various reports of hermaphrodites.

71. It is furnished with blood vessels from several sources; both arteries and veins are branches from the hypogastrics and vasa pudenda. Its nerves, which arise from the sacri, endow it with great sensibility.

72. Depending as it were from the clitoris, are two similar bodies called the nymphæ—they separate more widely as they depart; and run downward towards the os externum; they are very vascular; and in virgins are, like the whole of the internal face of the vulva, of a bright red colour, and are supposed to augment venereal gratification—they certainly are very distensible, and unquestionably contribute by this property to diminish the risk of laceration during the passage of the child.

73. In the centre of, and between the inferior extremities of the nymphæ, the orifice of the urethra is found; and though, strictly speaking, it does not belong to the organs of generation, yet it is of such importance in many cases connected with gestation and labour, as to render a familiar acquaintance with it, absolutely necessary in the practice of midwifery. I shall have, upon another occasion, to revert to this part with more

exactitude as regards location, &c. The canal, or urethra, of which this is the outlet, is from one inch and a half, to two inches in length; and terminates in the urinary bladder; it is more capacious, and more distensible, than the male urethra; permitting, in many instances, calculi of considerable size to pass along it, without much inconvenience, or distress; and if this tube be slit up to its origin, it will be found studded with numerous mucous lacunæ, two of which at its orifice are particularly large—in the unimpregnated state of the uterus, its direction is nearly horizontal.

74. Below the orifice of the urethra, and almost immediately under the symphysis of the pubes, the orifice of the vagina or os externum is found—it may be said to occupy, in its undisturbed state, a considerable portion of the arch of the pubes, but its limits are very much increased during the passage of the head of the child at the end of labour; it then extends below the tubers of the ischia. It is surrounded by a sphincter, which arises from the sphincter ani; and is accompanied by the plexus retiformis. This sphincter has various degrees of power; owing either, to original conformation, or the habit of exerting it, or both. A medical friend informed me, he had a patient who had such complete control over this constrictor, as to enable her to retain an injection per vaginam, as long as she pleased.

75. In the virgin state, this orifice is almost always partially occluded by a membranous expansion, called the hymen—this partition is situated immediately within the orifice of the vagina, and seems to spread itself over, and be the connecting medium, of the carunculæ myrtiformes. It is almost constantly pierced by a hole, which gives issue to the menstruous secretion; when it is not, it gives occasion to such an accumulation of this fluid, as to produce great pain, and require for the most part the interference of art. This membrane has been considered by many celebrated anatomists, as a creature of the imagination; but I am abundantly convinced by multiplied observation, that it really exists; and in the museum of our Medical College, several beautiful specimens may be seen. Among the Jews, a discharge of blood, which was sup-

posed to proceed from the rupture of this membrane in primo coitu, was considered as the test of virginity.

76. Immediately at the external extremity of the vagina, we may observe several small fleshy, very vascular bodies, which seem to serve as a kind of valve to this orifice—these are the carunculæ myrtiformes; and upon which, in the virgin state, the hymen appears to spread itself; and are considered even now by many, to be the fragments of this membrane—these bodies exist independently of each other; and are besides, very much too large to be the debris of the hymen—their use appears to be, to hinder the urine, and even other foreign bodies, from passing into the vagina; to contribute towards the venereal orgasm; and to provide, in the last moments of labour, a supply of distensible materials, to diminish the risk of severe contusion, or of laceration.

77. In advance of the hymen, and a little below it, the semi-lunar fold, called the fourchette, may be seen; it almost as certainly belongs to the virgin as the hymen, as it is rarely found after delivery—between the hymen and the fourchette, the fossa navicularis is situated.

78. The space, directly behind the inferior terminations of the labia, and before the anus, is called the perineum—in its natural state it is about an inch and an half in width; is pretty dense, though chiefly composed of cellular membrane; but is capable of prodigious extension.

SECT. I.—*Of the Internal Organs.*

79. The internal organs of generation consist of the vagina, the uterus and its appendages, the fallopian tubes, and the ovaria.—The vagina is that canal which leads directly to the uterus. I have already stated, (75) that the hymen in virgins, and the carunculæ myrtiformes in married, or used women, guard, as it were, the entrance of this canal. Its length may be stated to vary at different periods of life; it is wider at its upper extremity than below; and more especially, towards the sacro-iliac symphyses, as its central portion is occupied by the uterus, which hangs pendulous in it. It is not direct in

its course, dipping first a little downwards, and then passing upwards to meet the uterus; with which it is so united as to exhibit, in time of labour, no line or mark of union; but forming with it a continuous canal. It consists of a pretty dense cellular substance, which is very elastic, as is proved after delivery, by its quickly restoring itself.

80. It is lined by a continuation of the membrane which covers the internal faces of the labia; it folds itself up into wrinkles, called rugæ—it is asserted by some, that these rugæ are peculiar to women; and to which several duties are assigned: 1st. That they contribute to venereal gratification, (but if this were one of their offices, they are certainly ill situated.) 2d. That they serve as a remora* to the ejected semen, and at the same time offer it a larger surface to be absorbed from. 3d. That these folds serve to give greater length and breadth to the vagina, by stretching out during labour, and thus preventing laceration. The vagina is extremely well supplied with blood vessels; and, when well injected, is found to be highly vascular—throughout its whole surface innumerable glandular follicles may be seen, which constantly secrete a mucous fluid. The vagina in its course forms several points of adhesion by means of cellular membrane: 1st. it adheres very strongly to the urethra before; and 2d. Behind, it unites itself pretty firmly at its upper part, to the rectum.

SECT. II.—*Of the Uterus and its Dependencies.*

81. The uterus is situated in the pelvic cavity, at the upper extremity of the vagina; it is so placed as to have the bladder before it, and the rectum behind; with both of which, there is more or less intimacy of connection, by intervening cellular membrane, and reflected peritoneum. It is of a pear-like shape, but a little flattened; with its small extremity hanging down in the vagina. It has been usual with writers, for the sake of convenience, to divide this organ into three parts; namely, fundus, body, and neck—the fundus is made to consist

* Speculations on Impregnation.

of all that part which is superior to the origin of the fallopian tubes; the body, of that portion which is inferior to them, and extending to the commencement of the neck; and the neck, of all that acuminate portion which distinctly dips into the vagina, and terminates in the os tinæ.

82. The substance of which the uterus is composed, has long been a matter of dispute with anatomists, and physiologists—some declaring it to be muscular, while others insist it is in its structure *sui generis*. Mr. Bell* decides on the muscularity of this organ, because he has seen and dissected its fibres; so thought Vesalius, Malpighi, Ruysch, and Hunter. Dr. Rambotham† denies the fact; and says, “this notion appears to be rather an assumption derived from the contractile powers, which this viscus is known to possess, and which are supposed only to exist on muscularity, than to originate in obvious appearances. However authors may write, and teachers may talk about the uterine muscles, no such structure is evident to my senses.” To me, neither this declaration of Dr. R. nor his reasoning has in the slightest degree shaken my faith in the muscular structure of this organ—the whole phenomena of labour at full time, and the throwing off of the ovum in aborting, irresistibly force me to this opinion. It is not at present, and perhaps it never may be decided, in what manner the fibres of the uterus dispose of themselves in composing this organ; yet enough of its structure is known, I believe, to warrant the declaration, that its functions as regards labour, are performed by the power of muscular contraction.

83. There is no organ in the human body, from whose structure so little can be inferred, as the unimpregnated uterus; in it, when laid open by the knife, we see no manifestation of capacity for distention; on the contrary, we observe nothing but dense unyielding walls, that would seem to bid defiance to any attempt for this purpose—in it we have no promise, of the immense force which it is destined to exert, to relieve itself of the produce of conception—nor can we anticipate the immense distensibility of its vessels from pregnancy, in the

* Eclectic Rep. Vol. V. p. 37.

† Practical Obs. Am. ed. p. 19.

diminutive, nay, almost imperceptible ones in its empty state—so wonderful, and so varied are the changes which this organ undergoes from impregnation.

84. The cavity of the uterus is small and somewhat of a triangular form; it terminates below in the neck, and its opening is termed the *os tinæ*. The uterus is lined through its whole extent, by a fine membrane, which, from near the *os tinæ* to its fundus, as also through the windings of the fallopian tubes, is so completely identified with the proper substance of these parts, as to defy any attempt at a regular separation—the same may be said of its peritoneal covering; refusing to dissolve its union with the external portions of the body and fundus, by any attempt that may be made for the purpose, unless it be after incipient putrefaction.

85. It has uniformly been declared, so far as I know, that the whole of the internal surface of the uterus, including the neck of this organ, and the fallopian tubes, are furnished with linings, from a continuation of the membrane which gives covering to the vagina—I have strong reasons to call in question the truth of this arrangement; so far at least, as the absence of identity of function, would declare the absence of identity of structure—it is now no longer a matter of dispute, that it is from the internal face of the uterus, that the menstruous secretion proceeds; yet this fluid is neither furnished by the vagina, nor by the fallopian tubes; consequently, the membranes lining these parts, cannot be one and the same.

86. The division of the uterus into different portions, was suggested for the convenience of demonstration; and has been employed by all the writers upon anatomy and midwifery, for the last century at least—I adhere to this division, but from very different motives; many years ago, I insisted on this division as essential, to the explanation of several of the phenomena, which this organ constantly presents; I shall therefore transcribe without apology, my sentiments, as expressed upon this subject, from my “*Essay on the means of lessening Pain, and facilitating certain cases of Difficult Labour,*” p. 17. ed. 2d.

87. “I cannot help regarding the neck of the uterus as a dis-

inct and independent part from the body and fundus, as having its own peculiar laws and actions; and that this separation of powers is absolutely necessary to the explanation of some of the phenomena exhibited in health and in disease, and the influence of certain agents upon this organ."

88. "My reasons for thinking so are, first, that we find the fundus and body may be distended to a great extent, without affecting the arrangement of the neck; thus, in every uterine pregnancy, we see these parts gradually yield to the influence of the ovum, until about the sixth or seventh month; while the neck remains very much the same as before impregnation."

89. "Secondly, that after the sixth or seventh month, the neck undergoes its changes, while the fundus and body remain in a great measure stationary; so that two distinct processes, or rather the same process, is performed at two different periods, and in different parts, in the order we have just mentioned."

90. "Thirdly, that the neck may be affected by disease, while the fundus and body may remain free, and the reverse; and that the neck may contract and relax, while the other parts are in opposite states—thus with women who are in the habit of aborting from some peculiarity of the uterus, we find the body and fundus may be excited to action, while the neck for a long time remains passive; and also the neck may relax, and, after some time, the fundus and body may be excited to contraction. And in cases of atony of the uterus after a too sudden delivery, the body and fundus may contract, while the neck is the only part in fault, and vice versa."

91. "The different conditions that the parts of the uterus may be in at the same time, where atony partially prevails, would seem to demonstrate the truth of what is here advanced. For it is a fact well known to almost every practitioner of midwifery, that each of the parts into which we have divided this viscus, may separately and independently of each other, be in a state of relaxation or contraction, and thus exhibit different phenomena, and be productive of different results." From this it would appear that nature has really established a divi-

sion of the uterus, which has hitherto been considered as merely conventional.

92. The uterus may be farther divided into an anterior, and posterior surface, and into two sides. The anterior portion of the uterus is rather more convex and thinner, than the posterior; and is subject to a less degree of distention—the posterior yielding considerably more, during the progress of gestation; and for this purpose more substance is given to it. From each side of the uterus, and at a line which would divide the fundus from the body, a tortuous body takes its rise; and is named the fallopian tube—it is hollow; but its caliber is not of a uniform width; at its uterine extremity, the opening is very small; but as it proceeds, it acquires size, and eventually terminates in an opening of some size, which is surrounded by an uneven frill, called the fimbria.

93. It has been thought by some, that these tubes were composed of similar tissues with the uterus itself; it is denied by others; but all agree that they enjoy a vermicular motion. Their linings are also said to be continuations of the same membrane which lines the uterus; but I have already called this in question (85)—the internal membrane of each tube, is contracted into longitudinal plicæ through its whole length; and furnishes, by means of many little glands, a fluid which constantly lubricates its surface.

94. Near to the abdominal extremities of the fallopian tubes, we find two small roundish bodies called the ovaria; these glands, if we may so term them, are of primary importance to the genital system of the female. By them is given, the first impulse for the menstruous secretion, and venereal indulgence; by them is furnished whatever may be contributed by the female, towards the formation of a new being. They are about the size of a common nutmeg, if it were a little flattened; and when cut into, present a glandular appearance—they are not remarkably supplied with blood vessels, nor do they possess much sensibility—at puberty, we may remark upon their surface, and especially when favourably placed between the eye and the light, a number of little vesicular bodies, of uncertain number, which contain a fluid, capable, it is said, of

being coagulated—these are the ova. When these are displaced by either fecundation or otherwise, they leave evidences, that they occupied certain portions of the surface of the ovaria.

95. We may also remark upon the face of an ovarium, a number of little spots, which, from their colour, are named corpora lutea; these until lately, were supposed to be the cicatrices of removed ova; but Sir Everard Home* has pretty satisfactorily proved, that these marks exist previously to impregnation; and that they have no less a destiny, than to furnish the ovum; and prepare it for impregnation. In the virgin state, he declares a corpus luteum to be a solid, compact, glandular body; and when the ovum is liberated, the cavity it leaves, is filled with blood; which, after a while is absorbed, and a small pit remains.

96. The whole of the abdominal portions of the uterus, namely, the fundus and body, are covered with peritoneum—it passes from its sides, in a state of duplication towards the lateral portions of the pelvis, and forms what has been termed the broad ligaments—each of these ligaments has an anterior and a posterior portion or pinion—in the anterior pinions, the fallopian tubes are included; and in the posterior, the ovaria.

97. The round ligaments, two in number, originate from the superior lateral parts of the womb, run in the doublings of the broad ligaments, and, rising to the brim of the pelvis, pass over it, through the abdominal rings, and lose themselves as it were in the groins. These ligaments are very vascular; especially, during pregnancy; and it is to this engorgement, that Baudelocque attributes the pains the woman sometimes feels in these parts, as gestation advances. These two sets of ligaments, have been supposed to give support, or permanency of situation to the uterus; if this were the design of them, it must be confessed they perform their duties, in a very inefficient manner—for it is well known to every accoucheur, that nothing can be more uncertain, than the situation of this organ; every change in the abdominal viscera, every

* See Phil. Trans. years 1817 and 1819.

alteration in the contents of the bladder, and rectum, imposes a new position upon it. Mr. Charles Bell has, however, made a new, and what he seems to think an important suggestion, as to the offices of the round ligaments; he supposes, they give rise to a number of muscular fibres, which perform a most important role in the economy of gestation and of labour; while they, at the same time, perform the offices of tendons rather than of ligaments. I shall refer the reader, for a confutation of Mr. B.'s opinions upon this subject, to "Essays upon various Subjects connected with Midwifery," p. 461 et seq.

98. The uterus is supplied with blood vessels from the spermatics and hypogastrics; the intercostal, the renal plexus, and sacral, furnish it with nerves—and is most abundantly provided with lymphatics.*

Having, in a cursory manner, given the anatomy of the uterus, it would seem proper that its functions should next be considered; and first of the

CHAPTER IV.

MENSES.

99. By menses, we mean, "a periodical discharge of a coloured fluid, resembling blood, happening every lunar month; commencing at puberty, and continuing until about the forty-fifth or even fiftieth year, unless interrupted by pregnancy, suckling, or disease."

100. It was formerly a matter of much uncertainty from whence this discharge proceeded; some supposed it came from the uterus itself, and others from the vagina, or both. This question is now put to rest, by both Morgagni and Dr. William Hunter having seen it proceed from the os uteri, in cases of procidentia. It was also a matter of much uncertain-

* Cruikshank on the Lymphatics.

ty, which class of blood vessels furnished this fluid: Ruysch declared it to be from the arteries; Vesalius from the veins; and Simpson from certain appropriate sinuses. If the views I shall take of this interesting phenomenon be correct, namely, its being a secretion, it will be found to proceed, as Ruysch supposed, from the arteries, as all secretions, so far as we yet know, with the exception of the liver, are performed by arteries.

101. It is uncertain who first suggested the idea, that the menstruous discharge is a secretion—the credit of it has been given to Haller, Bordeu, Hunter, and Saunders—the latter unquestionably taught it publicly in 1784, and how long before, I cannot ascertain.

102. Independently of considerations derived from the structure and diseases of the uterus, of the menses being the result of a secretory process, we are to regard the appearances of the discharged fluid itself, as confirmatory of the suggestion. This discharge must be either a portion of the common mass of blood as it circulates in the system, or it must have undergone some change during its separation from the common mass—if the former, it should exhibit the appearances of blood detracted from any other part of the body by opening a vessel for the purpose; but this is not so; if the latter, it is probable that it has been eliminated by that process termed secretion. This opinion is farther strengthened by the following considerations of the physical properties of the fluid itself: 1st. Its colour is between the arterial and venal blood; being less brilliant than the former; and more florid than the latter: 2d. It never separates into parts; blood drawn, or evacuated from any other part of a healthy body, does separate, in a short time, into its principal component parts: 3d. It never coagulates, though kept for years; while other blood, when free from disease, quickly does, when exposed to the influence of the air: 4th. Its odour is remarkably distinct from that of the circulating mass; and it is less disposed to putrefaction.

103. It is thought by some, to differ materially from common blood by not possessing fibrin; of this I cannot speak with certainty; but I am disposed to believe, that this part of the blood has only undergone a change, during elaboration; more

especially, as the coagulating lymph is always found to accompany the red globules, either when blood has been accidentally extravasated, or designedly drawn; my reason for thinking so is, that in many instances nothing more is necessary to this effect, than the establishment of some peculiar arterial action—thus we find in certain kinds of small-pox, fevers termed putrid, scurvy, &c. the blood loses the power of coagulation; the blood of those who die from lightning, blows upon the stomach, &c. it is said has also this capacity destroyed—therefore, the mere absence of coagulability, is not sufficient to prove the absence of fibrin.

104. In this, nature has shown her beneficence; for to what wretchedness would the woman be doomed, at each menstrual period, did it retain its property of coagulation? Mr. Hunter thought that this effect was produced by the blood losing its living principle during the secretion—but to this I cannot subscribe; as this fluid, as I have already noticed, is thought to resist putrefaction longer than common blood.

105. I have stated, in the definition of “menses,” that it first takes place at puberty, or that period at which the animal is capable of propagating its species—this period must vary as it may be influenced by climate, constitution, and modes of life; always being earlier in hot, than in cold countries; sooner in cities, than in the country, &c. Before they make their appearance, they almost always announce themselves, in the altered appearance of the female—the mammæ increase in size; the voice undergoes a slight change: the pubes are covered with hair: and the best proportions the individual is susceptible of, now suddenly and successfully develop themselves. The mind is also replete with changes; puerile amusements now yield to maturer enjoyments, and rational inquiry; capricious attachments give place to sincere, unaffected, and permanent friendship; in a word, a new creature almost seems to be formed suddenly. Besides the physical and mental changes just spoken of, there are other circumstances which mark the pubescent period very near at hand—such as, headache, dulness of the eyes, pains in the pelvic re-

gion, lassitude, whimsical appetite, slight leucorrhœa, &c. and after these have continued a longer or shorter time, they suddenly depart, and a discharge of a small quantity of fluid from the vagina, is found to have taken place; but this need not necessarily be coloured at first. The last named circumstance is worthy of attention; as it will serve to explain those cases of impregnation which are said to have taken place previously to the eruption of the menses.

106. The menstrous period is usually from four to six days; and, during this time, from four to six ounces of fluid are discharged—in this, there must necessarily be some variety; depending upon constitution, &c. After it ceases, the woman is exempt from a repetition, for twenty-eight days, or a lunar month; at which time, however, it will return with most distinguished regularity—so much so indeed with several women I have known, as to enable them, not only to indicate the day, but also the hour—during the flow, the appetite with some becomes capricious; they are languid, pale, or hectically florid; a dark stripe most frequently may be observed below the eyes; and with many, a painful dragging sensation about the hips and loins, is constantly experienced, during the whole period.

107. In this manner are women subject to this flux, until between the fortieth and fiftieth years; at which time they cease, never to return. For the most part, as the period of cessation approaches, they fail in their wonted regularity—sometimes the period is protracted to six or seven weeks, and then, instead of five or six ounces being evacuated, there may be a loss of twenty or thirty; or there may be merely a show, as it is termed—at other times, the period may be anticipated by as many days, as it had exceeded before; and the discharge may be as vague as I have just mentioned.

108. I have known several instances, where the eruption of the menses was constantly preceded by strong hysterical paroxysms, of greater or less permanency; the menses would now appear, and instantly the system would be tranquillized, and the woman return to her ordinary state of health. One case I knew where a severe pruritus accompanied this convulsive

state, to the great annoyance of the poor young creature who was the subject of it.*

109. From the earliest records of medicine, to the present day, the ingenuity of the philosopher has been exercised to point out the efficient cause of this peculiar habit of the human female; I shall therefore cursorily pass in review the various hypotheses which have been invented for this purpose, and first

SECT. I.—*Of Lunar Influence.*

110. The influence of the moon was very early assigned as the efficient cause of menstruation; from either the real, or supposed effects of this luminary upon tides and diseases, it was easy to believe it might have a power or control over some of the healthy functions of the body; and, as the menstruous flux was periodical, and observed a lunar period, or interval, it was no great stretch of the imagination, to suppose its return connected with the movements of this body: this opinion is not entirely exploded at the present moment; though, to destroy this hypothesis, it is only necessary to state the fact, that there are women menstruating promiscuously every day of the year, and every hour of that day. Galen, at an early period, saw the weakness of this scheme, and accordingly invented another; namely,

SECT. II.—*The General Plethora Doctrine.*

111. This hypothesis has higher claims to our attention, than the one we have just been considering; for it is both ingenious, and plausible. He began with stating, that women

* This young woman was perfectly relieved from these disagreeable symptoms, by camphor in ten grain doses,† at the commencement of the menstruous period, and liberally washing the parts in the interval with a strong solution of borax.

† The writer of the "Critical Analysis of Dr. Dewees on Midwifery," in the Lond. Med. & Phys. Jour. for July, p. 72, says, "We should be unwilling to give ten grains at a dose (of camphor) without having first tried, by the exhibition of a smaller quantity, the power of the patient to bear the remedy."

I can assure the gentleman, that I rarely, if ever give this medicine in smaller doses; nor have I ever witnessed the smallest inconvenience to follow, which was attributable to the largeness of the dose. Idiosyncrasy may make any quantity improper.

were more disposed to plethora than men; 2d. That to get rid of this superabundance of blood, some outlet was necessary, and that this outlet was the uterus; 3d. That this state of fullness was essential to the female system, as it must make provision for the child, while in utero, as well as provide it sustenance after it is born; and that these objects were effected by the suppression of this discharge during pregnancy and suckling; 4th. That when the uterus failed in destroying this plethora, some other part performed a vicarious office, and gave issue to the blood: hence hæmorrhages from the lungs, bowels, ulcers, &c.; 5th. That when this evacuation failed to appear under ordinary circumstances, the quantity of blood was below the ordinary standard; and that it could only be recalled by such remedies as would increase the measure of this fluid.

112. To the first of his positions, it may safely be said, that strong doubt must be entertained of the fact; for, though women may exercise less than men, they perspire more; and their *ingesta* is certainly less.

113. And if there be a plethora, it must be occasioned by five or six ounces of blood; yet it is well known, that if five times that quantity was drawn just before the period was expected, or during its flow, that it would neither interrupt the eruption, nor diminish the quantity that would otherwise be expended. Of this I am certain, from the following facts: many years since, I witnessed a singular periodical hæmorrhage from the ear of a young lady, which was of several months' duration; it would commence at about 11 o'clock A.M. every day, with the utmost regularity, and, after giving issue to an ounce or two of blood, it would spontaneously stop, and not recur until the same hour of the next day: yet this young lady menstruated with the utmost regularity, both as to period, and quantity. It may not be uninteresting to state, that this affection was cured by the application of a blister near the part, after very many other remedies had fruitlessly been tried. Another case fell under my observation, which goes still farther to prove, that general plethora has no agency in the production of the catamenia. A young lady asked my advice for

a daily discharge of blood from the anus, of several years' continuance: she would lose very frequently from a half pint to a pint at a time, and smaller quantities almost daily; she of course was feeble, and far removed from plethora; yet she menstruated regularly, and never employed less than a week for the discharge.

114. To the second it may be answered, that men, however plethoric, have no such compensating discharge. To the third it may be declared, the means are not adequate to the end: for the embryo would not require, for a long time, any thing like five or six ounces of blood for its support; and, at a more advanced period of gestation, it would be altogether insufficient. With respect to its subserviency to lactation, how totally insufficient would it be for a healthy, or even a very feeble infant! The fourth, I must protest against, as a fact: for in all good faith, I avow, that in five and thirty years' practice, I have never witnessed an unquestionable case of this kind. And, as regards the fifth, the daily experience of almost every practitioner, must be set in opposition to it: for, though we very frequently employ stimulants for the restoration of the menstruous secretion, yet they do not act by filling the blood vessels, but by increasing their activity; but are we not obliged almost always to employ depleting remedies before we can advantageously use tonics? and do they not sometimes succeed without the agency of stimulants?

115. The doctrine of fermentation of the chemists; the mechanical solution of Dr. Friend; the preposterously indelicate hypothesis of Le Cat and Brown, do not deserve an attempt at refutation; we shall consign them, with some others, to "the tomb of all the Capulets," from whence, as we trust, never to be recalled.

116. I cannot, however, dismiss this part of my subject, without noticing the highly ingenious explanation of Dr. Cullen, by whom it was taught with all the force of eloquence, and all the charms of fancy; and, such was its plausibility, and speciousness, as to enlist in its defence, almost all the teachers in Europe, and not a few in America. It is called the theory of

SECT. III.—*Topical Congestion.*

117. Dr. Cullen supposes that the body is developed pretty much in the order of necessity, and the size of the vessels belonging to the part: hence the head and superior extremities are first unfolded; then the lower extremities; and, lastly, the uterus. "But," says he, "as the vessels of every part, by their distention and growth, increase in density, and thus give greater resistance to further growth; at the same time, by the same resistance, they determine the blood in greater quantity into parts not yet equally developed. By this means the whole system must be successively and equally evolved. Upon these principles, there will be a period in the growth of the body, and when the vessels of the uterus will be in equilibrium with the other parts of the system; *and their constitution may be such, that their distention may proceed so far as to open their extremities, terminating in the cavity of the uterus, so as to pour out blood there; or it may happen, that a certain degree of distention may be sufficient to irritate and increase the action of the vessels, and thereby produce an hæmorrhagic effort, which may force the extremities of the vessels, with the same effect of pouring out blood.*"

118. In either way, he accounts for the first appearance of a flow of blood from the uterus of women. In order to this, he does not suppose any more of a general plethora in the system, than what is constantly necessary for the successive evolution of the several parts of it; and proceeds upon the supposition, that the evolution of each particular part must necessarily depend upon plethora, or increased congestion in its proper vessels. Thus he supposes it to happen with respect to the uterus; but as its plethoric state produces an evacuation of blood from its vessels—this evacuation must empty these vessels more especially, and put them again into a relaxed state with respect to the system. This empty and relaxed state of the vessels of the uterus, will give rise to a new congestion, till they are brought again to that degree of distention, that may either force their extremities, or produce a new hæmorrhagic

effort that may have the same effect. Thus, an evacuation of blood from the uterus, being once begun by the causes just mentioned, it must, by the operation of the same causes, return after a certain period, and must continue to do so till particular circumstances occasion a considerable change in the constitution of the uterus. What determines the period to nearly a month, he cannot explain; but supposes it to depend upon a certain balance between the vessels of the uterus and those of other parts of the body. This must determine the first periods; and when it does so, it can be understood, that a considerable increase or diminution of the quantity of blood in the whole system will have but little effect in increasing or diminishing the quantity distributed to the uterus. And when this evacuation has been repeated for some time at regular periods, it may be supposed that *the power of habit*, which so readily takes place in the animal system, may have a great share in determining the periodical motions of the uterus.

119. Upon this celebrated hypothesis I shall beg leave to observe, first, that he has admitted more causes than are necessary to account for the phenomena—thus at one moment, “their distention” is such “as to open their extremities, terminating in the cavity of the uterus, so as to pour out blood there;” in an instant after, he conjectures, “that a certain degree of distention may be sufficient to irritate and increase the action of the vessels, and thereby produce an hæmorrhagic effort, which may force the extremities of the vessels, with the same effect of pouring out blood.” Here two distinct causes are assigned, for the same effect; namely, “distention,” and an “hæmorrhagic effort”—both of these could not possibly operate at the same time, if they be distinct agents; and if they be not, we are certainly entitled to be informed, in what they differ; for we cannot understand what is meant by an hæmorrhagic effort, if it be distinct from such a degree of distention, as shall force the vessels to yield blood. 2d. That if this scheme be true, the menstruous discharge is nothing but a common hæmorrhage; for here are vessels distended to such extent as to oblige “their extremities terminating in the uterus, to *pour out blood* there;” now, what are we to understand

in this instance of pouring out blood into the cavity of the uterus, different from blood being poured out in the cells of the lungs, or the cavity of the stomach, when the sides or extremities of their vessels are so forced as to yield their contents? We see none; yet the appearance of the menstruous blood is entirely different from hæmorrhagic blood.

120. Third, were this doctrine true, no woman could possibly preserve the fruit of her womb to the full period of uterogestation; for it is a fact as well ascertained, as any connected with our history, that, so soon as conception takes place, an increased flow of blood to the uterus takes place; now, if upon common occasions, much less blood will produce such a "distention, or hæmorrhagic effort" in the vessels terminating in the cavity of the uterus, that they shall pour out blood there, what is there to prevent an increased quantity, the consequence of pregnancy, from doing the same, and thus deluging at once the delicate, and unsettled ovum?

121. Fourth. It would seem in some measure essential to this hypothesis, that "habit" should exert a certain influence, to insure the periodical returns of the catamenia—it can, we think, in one moment be shown that, "habit" has not the smallest agency in the production of this discharge; for it is notorious to every body, that this is constantly interrupted in married women for many months together—nine months of pregnancy, twelve, or even eighteen months of suckling; during the whole of which time, the menses do not make their appearance; yet, the child is no sooner taken from the breast, than this evacuation establishes itself, and with as much regularity as if it had never been interrupted—since then, in these instances, "habit" has had no influence upon the first return, it cannot possibly be necessary to any number of returns.

122. From what has just been said, it appears that hitherto nothing satisfactory has been advanced upon this curious subject—it yet remains for some future Haller or Hunter to enrich medical science with a rational explanation of it.

SECT. IV.—*Final cause.*

123. The final cause of the menses, is perhaps enveloped in some obscurity; but of this we know at least one incontrovertible fact; namely, that the healthy performance of this function is in some way or other connected with impregnation; as no well-attested instance is yet upon record, where this has taken place in a female who never had had this discharge, or even when it was not eliminated of a healthy character, and with a greater or less degree of regularity. It perhaps may be said, that in those rare instances where women never menstruated, there was some imperfection in the genital organs; this perhaps is the case pretty uniformly; I know it was so in one which fell under my own notice—a young lady of twenty-eight years of age had never menstruated, or given any evidence of the necessity of this evacuation, as she very uniformly enjoyed good health and spirits. She was, however, seized with an inflammation of her bowels, and soon became alarmingly ill; I was requested to visit her in consultation; and as she never had menstruated, and as she suffered severe periodical pains in the region of the uterus, it was supposed that some derangement of this organ might be the cause of her present suffering; I was accordingly requested to examine her per vaginam. The finger passed into the vagina with some difficulty, but the uterus was readily touched. It presented to the finger a size not exceeding the thumb of a man; and its neck was as slender as a common writing quill, and about half an inch in length. The pubes were covered with the usual quantity of hair, and the mammæ were pretty well developed—the imperfection in this case consisted, most probably, in the want of size of the uterus alone; as it is more than probable, from the state of the breasts, and covering of the pubes, that the ovaria were not in fault—moreover, she was fond of mixed society, and, I have reason to believe, she was ardently attached to a gentleman, but refused to marry, on account of the absence of the menses. She died two or three days after my examination; but leave could not be obtained to inspect the body.

124. But cases like the one just related cannot invalidate the other part of our position ; namely, that women must not only menstruate, but must menstruate healthily, and regularly, to ensure impregnation. Besides, a strong analogy is presented to us in the economy of brutes—the females of which have their periods of salacity ; at this time they have a copious discharge from the vagina, which without question, is of similar import, with the menses of the human female—it is not a mere increased flow of the natural vaginal discharge ; for we see it instantly detected by the discriminating olfactories of the male.

125. It may be asked, why are the menses in the human female coloured ? It may be difficult to answer this satisfactorily ; but I am of opinion, that one of its uses is, to advertise the female when this discharge is arrested, that impregnation has most probably taken place ; and thus she is enabled to make the necessary arrangements for the period of becoming a mother. Were this discharge not coloured, it might readily be mistaken for an increase of the secretion, natural to the uterus and vagina—but being coloured, this error could not well take place.

CHAPTER V.

OF CONCEPTION.

126. THE ingenuity of physiologists has invented hundreds of hypotheses by which impregnation is said to take place in the human subject. The supporters of these various notions may, however, all be reduced to a few general heads, under which they will naturally range themselves :—First, they may be divided into those who suppose the male semen to be directly conveyed to the ovaries by being urged by the powers of the male apparatus through the neck of the uterus into its cavity ; and from thence to be transported by some inherent power of the uterus to these bodies. 2d. Into those who sup-

posed this ground not tenable; and who declared the semen is first absorbed from the vagina, and carried eventually to the ovaries, through the medium of the circulation. 3d. Into those, who believe the semen makes an impression upon the labia, vagina, or the uterus; and that impregnation takes place by the ovaria sympathizing with this impression. 4th. Into those who believe in the direct conveyance of the semen, by its being taken up from the labia pudendi or vagina by a set of vessels, whose whole duty is to convey it to the ovaries.

127. Against the first opinion it may be urged, that many well attested instances have occurred, where it was impossible that the extremity of the male urethra could be placed in direct opposition to the os tinæ, so that it could receive the male semen from it by a vis a tergo, (a sine qua non to this hypothesis,) first, because of the entire occlusion of the os externum by a too dense hymen, cicatrices, or the vagina terminating in the rectum; consequently the penis could not enter it. 2d. By the male urethra not terminating at the extremity of the glans penis, but beneath it, at the posterior extremity of the frænum; by the urethra being obstructed by strictures; by that canal terminating at the junction of the scrotum with the body of the penis; consequently, destroying the impetus the semen derived from the ejaculatory powers of the male organs, &c.

128. To the second, it may be objected, that if the semen were absorbed by the lymphatics of the vagina, it would be, like every other substance subjected to their influence, so changed as to be no longer semen; consequently could not impregnate an ovum, as it is no longer pure semen. To this it is true it may be answered, that the very changes imposed upon the semen by the absorbents, may be essential to fecundation. But this would be flying in the face of the experiments of Spallanzani, who found that the semen *itself* was absolutely necessary to impregnation.

129. To the third, we may say, it makes no provision for the formation of mules; for the peculiarities of, and likeness to parents; and for the propagation of disease, from parent to child.

130. The fourth we must leave to others to object to—It has many years since promulgated this conjecture; and it has since been in part confirmed by the discovery of ducts leading from the ovary to the vagina, in the cow and sow, by Dr. Gartner of Copenhagen. I think this the most simple mode nature could have adopted for the completion of her favourite object; but, I confess, it wants farther confirmation; and this I sincerely hope, is reserved to reward the industry of some American searcher into the minute anatomy of the human frame. I cannot but lament here the early death of the indefatigable, and amiable Lawrance, who had intended to have made the search for these vessels one of his early occupations; and from talents and industry like his, what might we not have hoped for?

SECT. I.—*On the changes produced by Conception.*

131. However philosophers may differ in the mode of application of the male semen to the female ovary, they all agree that it is either directly or indirectly essential to impregnation. I shall now consider the changes produced upon the female organs after this event has taken place; and shall begin with those induced in the ovarium. After successful coition has taken place, an ovum is perceived to increase in size, and is seen to stand in more decided relief from the surface of the ovarium; and it is said that this body now becomes more vascular: arrangements are now making, by the good offices of the absorbents, for its liberation from its nidus; accordingly its peritoneal covering is destroyed by these vessels, and it is ready to be embraced by the fimbriated extremity of the fallopian tube, that it may be conveyed through its cavity to the uterus.

132. The tube is at this time, found in strict union with the ovarium; and is in a short time more, found possessed of this little sphere. How it is detached from its bed, is not precisely understood; some say it falls into the cavity of the tube—others that it is mechanically forced into it, by the firm grasp of the tubal extremity, &c.: certain it is, it rarely fails getting into this canal, and is made to travel, by some power or other,

its whole length; it is probably arrested at the uterine extremity for a short time after it arrives there, before it can effect a lodgement within the cavity of the womb.

133. Physiologists have not settled the point of time, at which the ovum loses its connection with the ovarium; nor the period it employs in travelling to the uterus, or when it is admitted within its walls; analogy has furnished almost the only data that even conjecture can rest upon; and, in summing up the evidence it affords, it would seem to be about twenty days. A difficulty however, has always presented itself, after the ovum has arrived at the extremity of the fallopian tube, to get it satisfactorily into the cavity of the uterus. For it would seem, from the acknowledgments of almost all who have investigated this point in the human subject, that the fallopian tube is sealed by the decidua passing over it; and that, consequently, the ovum must be placed behind it; the question then is, how does it overcome the difficulty that this production offers to its immediate entrance into the cavity of the uterus? Before we attempt a solution of this question, it will be necessary to inquire, what this production is; how it is disposed of; and what are its uses.

134. It would appear from the observations of those, whose opportunities and talents have led them to the investigation of this obscure part of human physiology, that the following fact constantly presents itself; that, so soon as impregnation takes place, and is perceived, if it may be so expressed, by the ovarium, the internal surface of the uterus throws out through its whole extent, a vascular tissue, which, from its being after a time cast off, has received the name of *membrana decidua*: this was first accurately described by the late Dr. William Hunter. It is, I believe, well ascertained, that all that is necessary to induce the uterus to set about secreting this coat, is, that a vesicle be impregnated. And whether this escapes from the ovarium or not; tarries in the fallopian tube; or loses itself in the cavity of the abdomen, it never fails to produce the decidua; and that very quickly. Some* have thought it to

* Dr. Hunter, Scarpa, &c.

be a coagulable lymph, which soon became organized, by thousands of vessels shooting up through the whole extent of its surface; others* imagined it was a kind of continuation of the proper vessels of the uterus; and Mr. John Hunter believed it to be originally a coagulum of blood. Injections prove it to be highly vascular; and constant observation proves it to be deciduous; therefore, it must be a temporary product; and certainly subservient to the uses of the embryo.

135. It is spread over the whole of the internal surface of the body and fundus of the uterus, but does not dip into its neck—it forms as it were a bag within the uterus; sometimes, we are told† it does not stretch across the aperture formed by the neck; and sometimes,‡ it is said not to be continued over the mouths of the fallopian tubes.

136. The uses of this new product cannot be mistaken; it certainly serves as the bond of union between the ovum, and the uterus; and has, moreover, an indirect agency in the circulation between the mother and child.

137. It is described by Dr. Hunter, Dr. Hamilton, Mr. Burns, and others, as a double membrane; but as Mr. Burns is the latest of these authors; as he is extensively engaged in midwifery; and has, as he declares, had several opportunities of examining the uterus within a month after conception; and, above all, as he is the present authority for almost every thing relative to this subject; I shall give his account of the mode in which the ovum places itself behind the decidua, that it may finally descend into the cavity of the uterus. He says, “when the embryo passes down through the tube, it is stopped, when it reaches the uterus, by the inner layer (of the decidua) which goes across the aperture of the tube, and thus would be prevented from falling into the cavity of the uterus, even were it quite loose and unattached. By the growth of the embryo, and the enlargement of the membranes, this membrane is distended, and made to encroach upon the cavity of the uterus, or, more correctly speaking, it grows with the ovum. This dis-

* Haller and others.

† Burns, p. 193.

‡ Sir E. Home, Phil. Trans.

tention or growth gradually increases, until at last the whole of the cavity of the uterus is filled up, and the protruded portion of the inner layer of the decidua comes in contact with that portion of itself which remains attached to the outer layer. We find then, that the inner layer is turned down and covers the chorion; from which circumstances, it has been called the decidua reflexa."

138. From this statement, it would appear: 1st. That the decidua is a double membrane and capable of separation. 2d. That in order that the ovum shall be placed behind the inner layer, it must pass through the outer layer; or, in other words, the outer layer must be pierced by two holes, one at each fallopian tube. 3d. That the inner coat of the decidua, when pressed upon by the ovum, must increase in proportion to the augmentation of that body, that it may come "in contact with that portion of itself, which remains attached to the outer layer," or, in other words, to become reflected.

139. These things being admitted, it must necessarily follow, that the ovum will possess three layers of decidua instead of two; one more than ever has been detected, or even described. I have examined many ova, for the purpose of understanding their mechanism; and this with all the care, and all the little ability I have for minute dissection; and I can most safely add, without any previously conceived theory: yet I have never been able to find but two laminæ of decidua. If Mr. Burns' account be true, where is the third layer? and that it must have three agreeably to his scheme, is evident, viz. two original layers, and an acquired one by the growth of the ovum, as it pushes it forward to occupy the cavity of the uterus, and "which grows with it."

140. It will farther follow from these premises: (134, &c.) 1. That the account given by Mr. Burns, is not exactly as he has stated it to be; or that, 2. The reflected portion must be absorbed, as quickly almost as formed; since it has never been observed. As regards myself, I confess I have no confidence in the history of the ovum as given by Mr. B.; and for this plain and simple reason—it does not comport with anatomical

facts; a foundation upon which the whole must rest, to be satisfactory.

141. I have no faith in the statement that the decidua is a double membrane; at least I have never seen it such; and of course, until I do, I shall admit it with great caution; especially, as it does not appear necessary to the explanation of this subject: 1st. Because a work of supererogation would have been performed, in making two layers, when one would appear to be all that is necessary; and, 2d. Because, if we believe it to be a single membrane, the explanation is easy; and in entire conformity with the anatomy of the ovum, as presented to us by dissection. My opinion upon this subject then, is easily expressed, by substituting a single membrane for a double one. To understand the union which now takes place between the ovum and this adventitious covering, it is necessary to say a few words on the subject of the

SECT. II.—*Membranes.*

142. From reasoning on the subject, I was always of opinion, that the ovum brought its membranes with it from the ovarium; but I am now abundantly convinced, from the late observations of Sir Everard Home, who detected them, at a very early period of conception, by the aid of powerful glasses, assisted in the use of them by the skill of Mr. Baur. These membranes, two in number, the inner one called amnion, and the outer one chorion, serve to enclose the embryo, and the water in which it floats, even while it sojourns in the ovarium; after its escape from thence, they serve two other important ends; one is, to furnish by means of the amnion a quantity of fluid for the protection of the very tender molecule within; and second, through the intervention of the chorion, to connect itself with the internal surface of the uterus.

143. At first these membranes are not in immediate contact; having between them a jelly-like substance, which fills up the space that separates them; after a while, however, owing to the increase of growth of the amnion, and a diminution of the gluten, they approximate each other so nearly, that they may

be said to touch. The amnion is thin, transparent, smooth, and destitute, so far as the eye can discover, of vessels—it lines the chorion; spreads itself over the placenta; and invests the umbilical cord to the umbilicus—here it stops.

144. The chorion is also a thin membrane; is pretty transparent; and, at the full period of gestation, is oftentimes very strong, and resists for a long time the impulses of labour. It adheres very firmly to the placenta, giving a covering to all its superficial vessels; it also accompanies the amnion along the whole extent of the cord. Its outer surface, very quickly after its escape from the ovary, is found to assume a cellular appearance, and soon after a flocculent one—it is this coat which furnishes, from its external surface, the innumerable vessels by which it unites itself to the uterus by means of the decidua. An interchange of good offices takes place between them; they permit reciprocally each other's vessels to repose themselves throughout their respective extents, by interlocking in such manner, as to establish a firm union between them. The extremities of the vessels of the chorion penetrate the interstices offered by the vessels of the decidua; while, those of the latter seek refuge in the meshes of the chorion. The union of the chorion with the decidua is so strict, especially, after the second month, as always to bring it with it, in cases of abortion.

145. These membranes enclose, besides the embryo and placenta, a fluid named liquor amnii—it would seem to be the product of the amnion; in this the fœtus securely floats from its earliest existence, until the last period of utero-gestation. It seems to be but little more than water; having a little gluten, and muriate of soda in it. It is sometimes transparent like water, at other times yellow, brown, green, &c. and of various consistencies. Sometimes it is much more abundant than at others; from four ounces, to as many pints. The use of this fluid is to give the most uniform distention to the uterus—to protect the fœtus against external injuries; and to afford it the most gentle, and secure medium to repose in. Dr. Denman* says, it also “procures the most gentle, yet effi-

* Introduction, Francis's ed. p. 219.

cacious dilatation of the os uteri, and soft parts, at the time of parturition." This opinion I shall have occasion to advert to, in another place. (443, &c.)

146. The ovum, after its establishment within the uterus, or after it is expelled by violence from it, consists of the decidua, the decidua reflexa, chorion, and amnion; of the liquor amnii, the fœtus, and umbilical cord—the latter has one extremity inserted into the umbilicus of the child; the other affixed to the membranes, which now constitute

SECT. III.—*The Placenta.*

147. The placenta is that vascular mass, by which the circulation is maintained between mother and child; and by which the latter is nourished. Its size is various, owing to the constitution of either mother or child, or both—it resembles in shape a large cake; it is in general nearly circular, thicker in the middle than at the edges. It presents two surfaces; namely, the uterine, or maternal surface; and the fœtal surface. The former presents rather a rough and spongy appearance, traversed by several sulci of very inconsiderable depth; it is not unaptly compared in its appearance to the infractuositities of the brain; it is covered by a very fine cellular coat, but of such great delicacy, as to break upon the slightest bending of this mass. The eminences and sulci observed upon its maternal face, have been supposed to arise from a kind of necessity, for the greater security of attachment, by corresponding risings and sinkings, on the internal face of the uterus—I do not believe in this necessity; and suppose these sulci are the mere impressions of the maternal vessels, which are so much swelled beyond the plane of the common surface of the uterus, as to impress the placenta with furrows like the internal surface of the skull, by the vessels of the encephalon.

148. The internal surface is covered by the chorion and amnion, through whose coats may be perceived a beautiful display of vessels; sometimes they are found in fine regular order, like radii from a centre; at others, running into fantastic irregularity; these vessels are both the arteries and veins,

which tend to a common point, and unite in what is called the umbilical cord: in uniting to form this rope, they sometimes run parallel to each other for several inches; then twine round each other alternately until they arrive at the umbilicus of the child. They are connected through their whole extent by a fine cellular product, in the interstices of which we constantly find a quantity of a tenacious, ropy fluid.

149. This cord consists almost always of two arteries and a vein: the vein conveying the blood to the fœtus, and the arteries from it; the veins of the placenta rarely have valves, while they are frequently found in the arteries. The arteries are continuations of the hypogastrics of the fœtus; they pass out at the umbilicus, and run to lose themselves in the substance of the placenta: they anastomose with each other within the meshes of this mass, as well as with some of the venal branches; this kind of communication is sufficiently extensive, to enable us to fill the whole plexus, by injecting one of the umbilical arteries; so also may the arteries be filled by injecting the vein. The vein originates by many branches in the substance of the placenta, and, after a variety of unions, collects itself into one trunk, near where the arteries give off branches, the area of which is rather more than that of the two arteries.

SECT. IV.—*Fœtal Circulation.*

150. There are five striking peculiarities in the sanguiferous system of the fœtus: 1st. The vena umbilicalis. 2d. The ductus venosus. 3d. The foramen ovale. 4th. The ductus arteriosus. 5th. The arteriæ umbilicales.

151. 1. The vena umbilicalis arises by very fine branches in the placenta. These branches are collected into one trunk, near the placenta; which trunk, forming a considerable part of the volume of the cord, enters the abdomen through the navel, and, running along the anterior margin of the suspensory ligament of the liver, empties into the left branch of the sinus of the vena portarum. While it is engaged in the anterior section of the umbilical fissure of the liver, it gives off several small

branches to the substance of the liver. Nearly two-thirds of its blood is distributed to the liver, through the sinus of the vena portarum and these small branches.

152. 2. The ductus venosus arises from the left branch of the sinus of the vena portarum, and empties into the left hepatic vein, near the junction of the latter with the ascending vena cava abdominalis. The ductus venosus occupies the posterior section of the umbilical fissure, being much smaller than the vena umbilicalis, and arising from the sinus of the vena portarum, at its back part, directly in face of the entrance of the umbilical vein, so that a probe may be passed very readily from the one into the other.

153. 3. The foramen ovale is a large aperture between the two auricles of the heart, furnished with a valve on its left side, which is shut down the moment after respiration begins.

154. 4. The ductus arteriosus is a canal leading from the pulmonary artery into the aorta. It is so large as to appear like a continuation of the pulmonary artery, and discharges into the aorta at the lower part of its curvature, just after the origin of the left subclavian artery. The right and left pulmonary arteries, being, at this time, but very small branches, arise on each side of the ductus arteriosus.

155. 5. The arteriæ umbilicales are two in number, being continuations of the internal iliac arteries, which are here much larger than the external iliacs. The arteriæ umbilicales make a curve, running on the lateral parietes of the bladder, converge to the navel, and, passing through it, accompany the umbilical vein to the placenta. They twist spirally around it, and are distributed by very fine branches to the placenta, communicating with the extreme branches of the umbilical vein.

156. The course of the fœtal circulation is then, from the placenta through the umbilical vein and ductus venosus, into the ascending cava, whereby the blood is discharged into the right auricle of the heart. The position of the eustachian valve is such as to turn the greater part of this column of blood into the left auricle through the foramen ovale. The left auricle may, therefore, be considered as distended with the blood of the ascending cava, while the right auricle is distended with

the blood of the descending cava. The auricles contract at the same time, and fill the ventricles. The ventricles also contract together, and fill the pulmonary artery and the aorta. The size of the ductus arteriosus enables the right ventricle to discharge the greater part of its blood through it into the descending aorta. This blood is very impure. The blood passing through the foramen ovale to the left side of the heart, by being driven through the root of the aorta, is turned off to the head and upper extremities, through the arteria innominata, the left carotid and left subclavian; and what remains after this diversion joins the blood of the ductus arteriosus in the descending aorta. A small portion of the blood of the descending aorta goes to the lower extremities, and by much the greater part circulates through the umbilical arteries to the placenta, where, after being vivified, it runs into the extreme branches of the umbilical vein, and then repeats the same round until respiration begins. For the most part, immediately on respiration occurring, the vena umbilicalis, the ductus venosus, the foramen ovale, the ductus arteriosus, and the arteriæ umbilicales are closed, not to be again opened unless in very extraordinary cases.

SECT. V.—*Of the Changes in the Uterus by Impregnation.*

157. Hitherto I have been considering the changes induced upon the ovum by impregnation; it is now proper to notice those, which take place in the parietes of the uterus itself. These changes commence with those of the ovum, and its own internal surface; for no sooner is a vesicle fecundated, than the uterus has more blood sent to it, and the quantity increases with the progress of gestation. The vessels, which, as already noticed, are very small, and very much convoluted before fecundation, now quickly enlarge, and become straighter—and they continue to increase in diameter, as well as to unfold, until they arrive at a very considerable magnitude; so much so indeed, that some of the largest are said to be capable of admitting the extremity of the little finger.

158. The fibres of which this organ is chiefly composed, begin to develop themselves, so as to be recognised as muscular—they assume more distinct directions, and, though not susceptible perhaps of positive demonstration as to course, and form, are yet sufficiently palpable to deserve the name of muscular fibres. In consequence of this change, these fibres become longer and more lax; and admit, without restraint, the interposing, and much enlarged vessels that traverse them, in all directions, until the uterus itself is no longer capable of bearing further distention.

159. This increase of size is by no means without its laws—on the contrary, the most perfect regularity, and order are maintained, from the beginning to the end of gestation—so constant is the progress of development, that the period of pregnancy, can with great certainty be indicated by the experienced accoucheur, so soon as he has ascertained the exact condition of the uterus.

160. The position as well as distention of the uterus, lead us to a knowledge of the advancement of pregnancy—for the first three, and sometimes at the fourth month, the uterus is found, in consequence of its weight, lower in the vagina than it usually is when not impregnated—after the fourth month, or at the end of the fifth, the fundus can be felt at the pubic region—at the sixth, half way between it and the umbilicus—at the seventh, at the umbilicus—at the eighth, half way between the umbilicus and the scrobiculus cordis—at the ninth, not but very little higher, in a well formed pelvis; as, at this time, there is a subsiding of the uterus within the pelvis, owing to the more frequently repeated, and stronger contractions of the body and fundus, and the now almost complete development of the neck of the uterus. It is not, however, the fundus and body alone, that suffer changes during the periods just stated; the neck, after the sixth month, participates in these alterations—it gradually becomes shorter and shorter, until after the eighth month; and, at the ninth, it is entirely obliterated.

161. The body and fundus first yield to the influence of the ovum; and they continue to expand until about the seventh

month, or perhaps a little earlier—after this time, they seem to refuse to yield any farther; the neck then is obliged to contribute its mite for the farther accommodation of the fœtus, and its appurtenances, which it does, until the period of labour commences—at this time, no trace of the neck is to be found—nothing remains of this pendulous part, but its orifice, which now may be distinctly observed to be a little open.

162. The fundus and body of the uterus, not only yield before the neck, but some one part contributes more than another to the desired room for the comfort of the fœtus; and these are the posterior portions—hence they are found thicker, in the unimpregnated state; (92) and hence, the fallopian tubes are always found at the last period of pregnancy in advance of the uterus—a fact of much importance in performing the Cæsarean section.

163. In proportion to the advancement of pregnancy, the uterus acquires a deeper tone of colour—this is owing solely to the augmented quantity of blood which it now possesses.

164. The power, by which the uterus is distended, has been disputed. Dr. Denman will not admit the agency of the ovum; he says, “it is evidently not mechanical from the increasing size of the ovum, but from the accession of a new principle; for the uterus is never fully upon the stretch, like a bladder inflated with air, but relaxed in such a manner as to be apparently capable of bearing the farther increase of the ovum without inconvenience.”

165. We should be at a loss to comprehend this doctrine of Dr. Denman’s were we even to admit his proof—to say the uterus has acquired a new principle, does not do away the difficulty of understanding how it acquires size, unless something be positively added to this organ, at the time it gains the principle—for, he must admit, the uterus is enlarged; yet it is not distended like a bladder filled with air!—In what does the difference consist? There must be an increase of matter, as well as “an accession of a new principle,” to prevent its being distended like “a bladder filled with air;” or it must be stretched like one.—If it be declared there is an increase of

matter, we would ask for the evidence; as well as inquire what becomes of it, immediately after delivery?*

166. I am of opinion, that were the bladder circumstanced precisely like the uterus, or the uterus like the bladder, the same phenomena would present themselves—that is, let the uterus be deprived of its adventitious blood, as would happen after severe hæmorrhage, and it would be found as thin nearly, or perhaps quite, as the bladder, all things being equal—or let the muscular fibres of the bladder be separated by as many, and as large vessels as the uterus, and it would be as thick as the uterus when in a state of distention; for, we must deny that the uterine parietes, when freed from all their blood, are as thick as they were when unimpregnated.

167. Dr. Denman denies, that the uterus ever is in a state of “full distention;” I do not know what he would wish us to understand by “full distention;” if he mean, that it is still capable, under extreme pressure, of yielding farther, I should agree with him, that it is still capable of greater distention: but, if he mean, that it is never so much distended at the full period of utero-gestation, as might be compatible with either its economy, or comfort, I would certainly deny it, and would seek for no other proof, but the well-known fact, that, after the seventh month, it is constantly found resisting farther encroachments, by its parietes being excited to regular, and constant contractions, as may be distinctly perceived by the introduction of the finger into the os uteri. Besides, did we not admit

* I am happy to avail myself of the opinion of the judicious and experienced Dr. Ramsbotham, upon this subject. He says, “that there is no actual deposition of new animal matter within the uterine structure during pregnancy, appears to me evident in the established fact, that the uterus, by a process of silent and gradual contraction, continued for some time after the expulsion of its contents, can and does possess the power of daily diminishing its volume, until it has acquired its smallest unimpregnated size; when it is again able to resume its original and peculiar functions. But if the parietes of the gravid uterus be supposed to owe their size to bulk, acquired by the deposition of new animal matter, by what natural means is that matter so suddenly removed? Can the effects of absorption be thought equal to it? We see no such rapid diminution of size from the powers of the absorbent system under diseased structure. Contraction alone explains it.” *Pract. Obs. Am. ed. p. 26.*

this resistance to farther distention on the part of the body and fundus, how shall we ever explain the unfolding of the neck of the uterus at the period just indicated? Now, if it be distended at the ultimate period of pregnancy, to the point of resistance, would it not seem to be a rational, and natural deduction, that it had proceeded to "full distention," or at least, as far as was compatible with its economy, if not with its mere organization?

168. We may also urge, in favour of the ovum, having an agency by its growth in the distention of the uterus, that, if we discharge the liquor amnii, the uterus will collapse immediately, and accommodate its parietes to the form and size, of the remaining contents. Could this be, did the uterus acquire its additional bulk during pregnancy, from an increment of new animal matter? If this additional matter really did exist, it would doubtless be of serious mischief in cases of flooding; as it must necessarily interrupt contraction.

CHAPTER VI.

OF THE ACTION OF THE UTERUS.

169. THE uterus exerts two kinds of action; first, that action which tends to reduce itself to its original size after having been distended, and the distending cause is removed; this is called by Baudelocque and others, its tonic action: and is performed by all the fibres of this organ gathering themselves up towards a common centre; but more especially, by that class of fibres we shall denominate the "circular fibres;" the other fibres, or those we shall call the longitudinal, not acting with a force equal to the other: hence the lengthened form of the uterus.

170. The tonic action of the uterus can be exerted in various degrees, as it may possess its inherent powers in a greater or less state of perfection; it can exist under the following

conditions, and varieties; 1st. It may act with the most perfect uniformity and success for the purposes for which it was intended. 2d. It may be impaired so as to act transitorily and feebly. 3d. It may act with force at one moment, and cease the next. 4th. It may act partially; that is, the fundus may contract, and the body and neck be flaccid; the body may contract, and fundus and neck be relaxed; the neck may contract, and the body and fundus be in a state of atony; the body and fundus may contract, and the mouth be relaxed: when these occur, different phenomena present themselves, as shall be noticed, when treating on the subject of uterine hæmorrhage.

171. Secondly, the uterus possesses the power of alternate action; this action manifests itself only when attempting to expel something from its cavity: but can never do so, unless the tonic contraction is in a state of greater or less perfection. It never does take place, therefore, so long as the uterus is in a state of atony. This contraction has also been termed the spasmodic, or painful contraction of the uterus; as for the most part, it is accompanied by pain. It is always the effect of stimuli, or mechanical irritation; hence it appears during labour; during abortion; or in the form of after-pains, to expel coagula, or other foreign substances. It is almost always attended by pain, but not necessarily; when pain attends, it is not because it is an inevitable consequence of this contraction, but by reason of some change, which the muscular fibre has undergone from civilization, refinement, or disease. We see it sometimes most efficiently excited without pain, as in the labours of the aboriginal women of this country: in the women of Calabria, and, among some, even in this, our artificial state of society. It tends, during its best action, to diminish the cavity of the uterus, and, consequently, to expel its contents; but its effects are but transitory, as the uterus returns to the condition it was in before this contraction took place. It is most successfully exerted when all the fibres composing the body and fundus of the uterus act simultaneously—when it acts partially, it is more painful than when the action is general, and never achieves the object it is intended to effect.

172. In the brute, this contraction is successfully exerted

without the intervention of pain ; unless, the labour be complicated with disease, or accident. When either of these occur, the same consequences follow—namely, pain. It would be wrong, therefore, to suppose, that the labour of the female brute is performed upon a different principle from the human female, because she is for the most part, exempt from pain—for truly, the same general process occurs in both ; and in both, the uteri exert the same kinds of action : the only difference is, the one is performed with pain, and the other without. It has been supposed by some, from the mere absence of pain, that in the brute, the fœtus is expelled by one uniform, but sufficiently long continued effort, without the intervention of the alternate contraction ; but this is not so—as any one may at once convince himself, by observing the progress of a labour in almost any of our domestic animals. It will be distinctly, and easily perceived, that there is, from time to time, a suspension of uterine effort, and a repetition of it ; marking, most conspicuously, the intervention of the alternate contraction.

173. In the brute the alternate contraction is attended with pain, when the uterus is provoked by accident, or disease, to severer exertion, than ordinary—and when this happens, their sufferings are as great, *cæteris paribus*, as those of the human female. From this it would appear, that such a condition of fibre may be accidentally induced in them, as is, pretty permanently fixed in the other. The alternate contraction would appear to be nothing more than a sudden and an exalted degree of the tonic ; and the pain which so usually attends this action, arises from some morbid, or altered condition of the muscular fibres, composing the uterus. This would seem to be proved by the effects which have followed civilization and refinement—and the influence of domestication may be even traced in those animals, which participate with man in the departure from his original simplicity ; for we are informed, that the artificial condition to which the cow especially is reduced for domestic convenience in and near great cities, subjects her to more difficult and dangerous labours than those in the natural, or less artificial state.

174. So far as we can determine the point, it seems that

the longitudinal fibres of the body in general, and those of the uterus in particular, have more especially felt the influence of the causes just mentioned; for man is said to have lost much of his original vigour and strength; and women, suffer from child-bearing; while the circular muscles, and sphincters, appear to have lost nothing of their primitive power: thus the heart and intestines, have parted perhaps with none of the original vigour with which, from the beginning of the world, they were endowed; nor have the several sphincters, among which the orifice of the uterus may be justly reckoned, suffered from constitutional abuses.

175. In the uterus in particular, we may observe pretty nearly the same thing—for I hold it more than probable, that the circular fibres of this organ have not deteriorated in the same degree as the longitudinal, nor are subject precisely to the same penalty, since they may contract with great force, without the production of pain. We see this well and satisfactorily illustrated in that condition of the body of the uterus, called the hour-glass contraction. This state may continue for hours, without being attended by pain.

176. The contractions of the uterus are entirely independent of the will; their intervals can neither be accelerated nor retarded by any exertion of it; nor can their force be either augmented, or diminished, by its influence; but passions and emotions of the mind, when strong, oftentimes exert a powerful influence over uterine action—they may call it into play, at a time the least expected; or may suspend it, when strongly excited. The first is proved by their being often followed by abortion; and the latter by the following fact; which fell under my own notice:—In 1792, I was called to attend a Mrs. C——, in consequence of her midwife being engaged—as I approached the house, I was most earnestly solicited to hasten in, as not a moment was to be lost. I was suddenly shown into Mrs. C.'s chamber, and my appearance explained, by stating that her midwife was engaged. As I entered the room, Mrs. C. was just recovering from a pain—and it was the last she had at that time. After waiting an hour in the expectation of a return of labour, I took my leave, and was not again sum-

moned to her for precisely two weeks. Every accoucheur has experienced the temporary suspension of pain upon his first appearance in the sick chamber, but for the period of two weeks it is very rare.

CHAPTER VII.

OF DISPLACEMENTS OF THE UTERUS.

177. NOTWITHSTANDING the uterus has four ligaments, purporting to support and sustain it in situ, yet they so ill perform this office, as to render it very doubtful whether such was the express intention of nature in their formation—certain it is, the uterus is subject to the impulses of the abdominal viscera, to the pressure of the distended bladder, and to the influence of the loaded rectum and sigmoid flexion of the colon; and we may add, to the influence of its own internal weight after conception.

SECT. I.—*Of Prolapsus from Pregnancy.*

178. The latter of the causes just enumerated, (177) very often sink the uterus so low in the pelvis, as to make it completely occupy the vagina; and it sometimes, discovers even a disposition to escape from the os externum—this subjects the woman when excessive, to certain inconveniences; but to none when moderate; except perhaps, a sensation, as if something were desirous of escaping from the vagina, when she is in an erect posture; but this is almost instantly relieved, when she disposes herself in a horizontal position. When more excessive, it creates embarrassments to the flow of urine, and the discharge of feces. These inconveniences rarely require medical interference; as they are relieved after a short time, when the uterus acquires a sufficient bulk to rise out of the brim of the pelvis. When interference is required, the application of a proper pessary is all that is necessary.

179. I recollect distinctly but two instances, in which it was necessary to introduce the catheter—for the woman is easily instructed to lie upon her back with her hips a little elevated when she is importuned to pass her urine; or readily taught to press back the uterus with her finger, should this not succeed; or to go upon her knees, which has, in several instances, been all that was necessary.

180. It is, however, liable to other derangements, much more difficult to remove, and much more serious in their consequences; these are the retroversion and anteversion, as well as the prolapsus, when pregnancy has no agency in it.

SECT. II.—*Retroversion of the Uterus.*

181. The retroversion, is that displacement of the uterus, where the fundus is precipitated backwards, and places itself between the rectum and bladder, in such manner as to be readily felt upon the introduction of the finger into the vagina, while the neck is mounted up, behind the symphysis pubes.

182. This situation of the uterus was not distinctly known, until Dr. W. Hunter,* in 1754, favoured the world with his account of it; this he accompanied, by accurate drawings of the parts. Since this period, this disease has claimed much attention, and is now perfectly understood. It is not, however, regarded of equal consequence by all; while Hunter, Baudelocque, Meygrier, Burns, &c. look upon it as an accident of serious moment; others, as Denman and Merriman, view it almost with careless indifference—as both cannot be right, I shall, in the prosecution of this subject, attempt to show which of the opinions has the strongest claims to public confidence.

183. This deranged situation of the uterus may take place in its unimpregnated, as well as in its impregnated state—the latter is, however, by far the more common. It usually takes place between the second, and the fourth month of pregnancy, as after this period the length and thickness of the uterus will exceed the opening of the superior strait, and prevent its folding down upon itself. See (160.)

* Med. Obs. Vols. IV. and V.

184. The remote cause of this complaint is, whatever tends to depress the fundus; and may be either external violence, such as blows, pressure, sudden exertion, &c. or violent efforts to vomit, violent coughing, an over distended bladder; or perhaps, an unusual accumulation of fæces in the rectum, or sigmoid flexion of the colon. These causes may operate suddenly, so as instantly to produce the disease; or slowly, requiring a long time for its completion.

185. The symptoms produced by this unnatural situation of the uterus, may be more or less violent; according to the size they may have acquired; as the displacement may have been suddenly or slowly produced. When suddenly induced, the symptoms are usually violent, and alarming—such as an immediate interruption to the flow of urine, or the passage of the fæces; alternate pains, accompanied by great forcing or bearing down; a disposition to fainting, &c. When considerable time is spent in completing this displacement, the evils arising from it are less urgent and severe. But in both cases, if the uterus be not restored, the symptoms will increase in intensity; instead of a difficulty, and frequent inclination to make water, there will be a total suppression of it, accompanied by a painfully intense desire to do so—for the fœtus will go on to increase in size, and the uterus to developing itself; thus, giving additional pressure, to the parts with which it is in contact.

186. In the unimpregnated state of the uterus, the symptoms, so far as I have observed, are never so distressing; the reason for this will be easily comprehended; but the parts never become entirely reconciled to their new situation. In the impregnated state, however, so much restraint is not imposed upon the uterus, as to prevent farther development, as we have already stated; but the effects of this increase can most readily be anticipated. Experience has abundantly shown that, if it be not restored, it will go on to augment, and at last completely occupy, the cavity of the pelvis.* This distinctly points out the time for the restoration of the fundus uteri.

187. The symptoms I have enumerated may, however, pro-

* See Dr. Hunter's case, *Med. Obs. and Inq.* also, Wilmer's cases, p. 144.

ceed from other causes; it will, therefore, be proper to ascertain by the touch, the situation of the uterus, so soon as symptoms become urgent. If retroversion has taken place, a roundish tumour will be felt at the posterior and inferior part of the lower strait, occupying more or less room, as the uterus may be a longer or shorter time impregnated, or as it may have been a longer or shorter time displaced. The finger cannot touch the projection of the sacrum; but may gain a passage to the upper strait, immediately behind the symphysis pubis, where, if the neck has not mounted up too high, the os tinæ may be felt.

188. This disease may be mistaken for a prolapsus uteri; but can most easily be distinguished from it: 1st. In the retroversion, by the vagina interposing between the finger and the tumour; and the neck of the uterus being mounted up behind the symphysis pubis. 2d. By the absence of the neck of the uterus, which is always found in advance of the body and fundus in a prolapsus. 3d. To the symptoms never being so extreme in the latter; and confined to those already noticed, when speaking of this complaint. 4th. By the prolapsed uterus always being moveable, the other obstinately fixed. It may also, according to Mr. Burns, be confounded with a diseased ovarium, when it may chance to occupy this place, or with an extra-uterine conception, when it may have been found between the rectum and vagina. I believe it may serve to distinguish between these two complaints, by noticing, that in both the diseased ovarium and the extra-uterine conception, the neck of the uterus is always within reach of the finger; and also that a long catheter may be readily passed in the natural axis of the uterus; for I believe the fundus would not be carried down with either of these bodies.

189. I may, moreover, observe, that both ovarial tumours and extra-uterine conceptions, are of slow and regular progress; especially, perhaps, the latter; therefore, should it produce symptoms analogous to retroversion, they would be of very gradual increase; and would require a long time for the symptoms to become imperative.

190. Dr. Denman has well described the mechanism of this

accident; but I cannot agree with him entirely as to the cause; he considers that a distended bladder is always the immediate cause of the retroversion, and that a suppression of urine is absolute only before, or during the act of retroverting; therefore, a stoppage of the water is the cause, and not the consequence of this complaint, as we have just described it to be. I cannot subscribe to this doctrine, for the following reasons: 1st. Because I am certain that it has been suddenly produced by violence, and without the intervention of a suppression of urine. Baudelocque also declares the same thing. 2d. Because, Baudelocque demonstrated to his class a slow retroversion of the uterus, which lasted three or four weeks before it was complete; in this case, there is no mention of any difficulty in making water.

191. Dr. Denman declares, also, that "the uterus must be elevated before it can be retroverted." To disprove this, it is only necessary to recur to those cases which have been suddenly induced, as I myself have witnessed, from external violences: though, I admit, that the elevation of the uterus would render it more easy of retroversion, were the remote causes acting at the same time.

192. The diagnosis of this complaint, as given by Dr. Denman, will readily lead to the explanation of his considering this as a trifling disease; for, he says, "If a woman, about the third month of pregnancy, has a suppression of urine continuing a *certain* length of time, and producing a certain degree of distention of the bladder, we may be assured that the uterus is retroverted." Should a mere suppression of urine in a pregnant woman, really indicate a retroversion, as is declared by this gentleman, we can readily account for his indifference to its consequences, and his trusting its cure to nature, or the occasional drawing off the water by the catheter. The young practitioner is forewarned against this uncertain plan; he is to look upon this complaint as one of eventual, if not of immediate danger; especially, when the temporising plan we shall now speak of, does not succeed.

193. As the most pressing symptom in retroversion is the stoppage of the urine, we should most sedulously endeavour to

prevent this being of too long continuance; the consequences should be candidly stated to the woman, should she permit her delicacy to interrupt an essential point of duty. The catheter should be employed *pro re nata*; and the bowels emptied daily, either by medicine of a mild kind, or by injections; if this plan should not succeed in restoring the fundus, we should then maturely consider the propriety of mechanically replacing it. To aid our judgment, we should consider; first, the period of gestation; secondly, the degree of development of the uterus; thirdly, the nature or severity of existing symptoms. The period of gestation should almost always influence our conduct in this complaint; and we may lay it down as a general rule; the nearer that period approaches four months, the greater will be the necessity to act promptly, in procuring the restoration of the fundus; the reason for this is obvious; every day after this, will but increase the difficulty of restoration, from the continually augmenting size of the ovum. The degree of development should also be taken into consideration; as some uteri are as much expanded at three months, as others are at four; consequently, when this obtains, there is a decided reason for acting earlier, than may at other times be necessary; so also at the fourth month, if the development be less than is usual for that period; we may, every thing being equal, delay the attempt at reposition, if any reason present itself to make this eligible. The extent, or severity of symptoms must ever be kept in view; for instance; we must not temporise too long where the suppression of urine is complete, and is not to be relieved by the catheter, lest the bladder become inflamed* or gangrenous,† or burst.‡ For the bladder, from its very organization, cannot bear distention beyond a certain degree; or beyond a certain time, without suffering serious mischief.

194. From this I conclude, that the uterus should in every instance be restored when practicable, at, or very little after, the fourth month: if left longer than this, the risk of not succeeding is every day increased; and I am firmly of opinion,

* Dr. Bell, *Med. Facts*, Vol. III. p. 32. † Mr. Lynn, *Med. Obs.* Vol. V. p. 388.

‡ Dr. Squire, *Med. Review* for 1801.

that nothing can justify longer delay at this time ; more especially, when it proceeds from the vain hope, that nature will relieve herself at the full period of gestation.*

195. The symptoms I have noticed above, should teach us the propriety, and necessity, of ascertaining the true situation of the woman, by an examination per vaginam ; and, until this be done, however we may hint our suspicions, we should never positively affirm her labouring under retroversion. For I have frequently prescribed a little sweet nitre and laudanum, for a difficulty of passing water in pregnant women, with the most decided success ; and, when more severe or obstinate than common, have examined per vaginam, sometimes without finding the uterus in a state of retroversion.

196. My experience has furnished me with few facts of which I am more certain, than that "a certain degree of distention of the bladder" may exist, and for a considerable time ; and even, where I have been under the necessity of using the catheter, without producing retroversion. And I am also certain, in retroversion, that the mere removal of the urine will but rarely, nay, not once perhaps in ten times, be sufficient to ensure the spontaneous restoration of the fundus, where the complaint is of long standing, or the pregnancy advanced beyond the third month. But let me be clearly understood to mean, that the precaution of drawing off the water where practicable, and that as frequently as the exigencies of the case demand, is indispensable, either to the spontaneous, or artificial reposition of the uterus.

197. I have great reason to believe, that an exclusive reliance upon drawing off the water, has been productive of the most serious evils, if not in some cases of death itself : it therefore should never be exclusively trusted, except at the early period of gestation. If the woman approach, or a little exceed the fourth month, the attempt at restoration should most unquestionably be made ; nor should it be abandoned, but for very strong reasons : nothing, indeed, but the impossibility of succeeding, should induce us to abandon the patient to her fate—I say, to her fate ; for, what can we promise ourselves in her favour ?

* Merriman.

198. The objections usually urged against the attempt to replace the fundus, are: 1st. The hazard of provoking abortion. 2d. That it does not always succeed, after strong and repeated efforts.

199. With respect to the first, there is abundant proof in my own experience, as well as that of others,* that abortion is not a necessary, though it may be a possible consequence of the attempt. I have never seen it follow; the fear of an imaginary evil, must not induce us to subject our patient to a more serious and positive harm. The risk of abortion is but trifling; but the neglect of reposition at the proper time, is a very serious piece of mismanagement.

200. As regards the second, if it fail, it must in general be attributed to our neglecting the proper moment for acting; or when it has not been properly performed. Having decided upon the propriety and necessity of giving aid to the suffering woman, I shall next give directions for the best mode of doing this. I must first consider what forces are operating to prevent the restoration of the fundus, before I describe how they are to be overcome; they will be found to be; 1st. A distended bladder. 2d. An impacted rectum; and, most probably, a loaded colon at its sigmoid flexure. 3d. The counteracting efforts of the woman herself. 4th. The too great bulk of the uterus.

201. The first thing to be accomplished is, the evacuation of the urine by the catheter; in this, it is said, we cannot always succeed; I have never met with such a case; and Mr. Burns declares the same thing; nay, he even goes farther—he says he does not believe it can occur—it must, therefore, be very rare. Dr. Denman has some very useful remarks upon this subject, which I would recommend to be studied—he advises the employment of the flexible male catheter; in this I heartily concur; he also cautions against any attempt to display dexterity, by the quick introduction of this instrument; and recommends the slow and cautious use of it—he also proposes pressure upon the abdomen, to promote the discharge of the

* See Baudelocque, Hunter, Wall, Meygrier, &c.

urine; I may, however, add, that not only the introduction of the catheter should be slow, but the drawing off the water also—I am certain I once saw serious mischief arise from inattention to this direction.

202. To overcome the second difficulty, injections should be thrown up the rectum if practicable; but which, it must be confessed, is sometimes impossible—we can succeed, however, with the elastic gum catheter of a large size, when the common means have failed; the injection should consist simply of salt and water, in the proportion of a table spoonful to a pint. A few hours before we attempt the reduction, small and repeated doses of the sulphate of magnesia may be given; provided the stomach is not distressed by vomiting, or severe nausea.

203. The third difficulty which may oppose us, is, the violent and involuntary efforts to bear down, to which the woman is excited, by the presence of the hand within the vagina—this is decidedly the greatest trouble we meet with in ordinary cases—for we may be foiled in our attempts at reposition, though the emptying of the bladder and rectum should not have been found troublesome. To overcome this opposition, experience has repeatedly taught me the efficacy of bleeding to fainting, or near to it.

204. When we have determined upon the bleeding, we should be prepared beforehand, to take advantage of the deliquium, as its effects are but transitory—the bed should be prepared in such manner, as will allow the patient to lie upon her back, with the perinæum free over the edge of the bedstead, and her shoulders a little depressed—some protection should be placed between the back of the woman and edge of the bedstead, that she may receive no injury from its hardness—the parts should be well lubricated with hog's lard or oil—a chair should be placed for each foot to rest upon, and these supported by two by-standers.

205. When every thing is in readiness, the arm should be tied up, and the patient made to stand near the bed; a large orifice must be made, and blood drawn until faintness is induced—when this happens, the arm can be secured, and the woman

placed as just directed—the hand, after being well lubricated, should be passed into the vagina, in a state of supination; the fingers retracted in such a manner, as to form a straight line at their extremities; they must then be gently pressed against the base as it were of the tumour found within the vagina, so as to move it backwards and upwards along the hollow of the sacrum, until the mass shall reach above the projection of this bone; when thus far, the hand may be withdrawn; and a pessary be introduced of a proper size: the woman must remain quiet in bed for three or four days; the urine for this period should be drawn off as often as may be required; and the fæces evacuated by injections.

206. The last of our embarrassments arises from the size of the uterus being equal to, or greater than the opening of the superior strait; this will be confessed to be one of much moment and interest—yet, I trust, is not beyond remedy—I believe that the plan just suggested, might succeed even here: but I confess it wants the test of experience. It should upon every consideration be tried, before severer means be adopted; should it fail, we lose nothing. But suppose it fail, what is to be done? Three modes of operating present themselves in this dilemma.

207. First, to confide entirely in the resources of nature, as recommended by Dr. Merriman.

208. Second, to attempt provoking of abortion by rupturing the membranes through the os tinæ.

209. Third, to puncture the uterus through the rectum, as advised by Dr. Hunter, or through the vagina, as practised by M. Jourel.

210. With respect to the first, there is, from all I can learn, but little temptation to trust to it. See strictures on Dr. Merriman's opinions, in "Essays on various Subjects connected with Midwifery," by the author, p. 291.

211. The second, if practicable, would unquestionably be the mildest and safest; but its success (so far as I can at present determine) must be very uncertain, or it may be always impracticable.*

* See Essays on various Subjects, &c. by W. P. Dewees, p. 287.

212. The third alternative has been condemned by some of the British writers; but, as it would appear, without sufficient reason; since M. Jourel succeeded recently in a case, the details of which are highly interesting and instructive, and should be carefully consulted by all who practise midwifery.*

213. In the anteversion, the fundus of the uterus is thrown forward, and downward; so that it presses immediately against the posterior and inferior portion of the bladder, while its neck is carried backward towards the projection of the sacrum. In this displacement, the symptoms are said to be less severe, than with the retroversion—the tumour being anterior, and the neck of the uterus posterior, will readily distinguish the one from the other—I have never seen a case of this kind so strongly marked, as to leave no doubts of its existence—I was once called to a patient in whom I suspected it had taken place; but it was in a partial degree, if at all—the symptoms were distressing, but eventually relieved by the use of the catheter, and anodyne injections. This disease has been mistaken for stone in the bladder, agreeably to Luret,† and the operation of lithotomy absolutely performed.

214. When the unimpregnated uterus is retroverted, it creates fewer inconveniences than when impregnated—the indications are precisely the same—the mode of reduction is also similar. This can sometimes, however, be effected without the introduction of the hand, by the proper application of the fingers alone—I succeeded in this way, in two instances of this kind of retroversion; both of which, however, were very recent when the attempt was made.

SECT. III.—*Of the Obliquities of the Uterus.*

215. The inconveniences arising from these species of displacement of the uterus, are sufficiently serious to merit an exposition of their mechanism. When we consider the globe-like form the uterus constantly maintains during the whole progress of its development; when we recollect how feebly it is sup-

* Dictionnaire des Sciences Medicales, Vol. IX. p. 31.

† Jour. de Med. Vol. IV.

ported by its ligaments; and bring to mind, the angle at which it must pass through the superior strait, we shall not be at all surprised to find it fail to maintain such a situation in the abdomen, as will enable the axis of its fundus, and that of the superior opening of the pelvis, to coincide. If we add to this, the peculiarity of conformation of several of the parts of the pelvis, and of its more immediate dependencies; and the influence these have upon this organ during its ascent into the abdomen, we shall soon be convinced of almost the impossibility of its centre preserving a correspondence with that of the pelvis—hence, the constant presence of obliquity in one form or other, in almost every pregnancy.

216. The obliquities of the uterus may be divided into three kinds:—1st. The right lateral obliquity; 2d. The anterior obliquity; 3d. The left lateral obliquity. In the first, the fundus of the uterus is found more or less inclined to the right portion of the abdomen, and its length, and departure from a vertical line, can readily be detected by the hand placed upon it—and when this inclination is excessive, as it sometimes is, it may be observed by the eye; especially, if the woman be viewed from behind. This species is by far the most frequent; owing to the constant presence, and influence of certain determining causes: 1st. The manner in which the rectum descends in the hollow of the sacrum; the rectum, in passing into the pelvis, does not preserve the centre of this bone, but inclines rather to the left portion of it; of course, when filled with feces, it will occupy a part of the lower strait; and consequently, will give an inclination to the uterus towards the right side; 2d. The sigmoid flexion of the colon, from its position, and almost constant distention, will aid by its impulses the already inclined fundus, in the same direction; and if we add, 3d. The round projection offered by the salient portion of the sacrum, we shall be at no loss to determine, why the right lateral obliquity is, of all, the most frequent. It would not, however, be correct to suppose, that the os uteri would be found always in an exact line with the fundus—I have known a number of exceptions to this.

217. In the second, or anterior obliquity, the fundus of the uterus continues to advance in the direction it received when passing through the superior strait—when on the pelvis, I mentioned that this was at an angle of between thirty and forty degrees; consequently, the fundus would carry the abdominal parietes before it in all instances, were not a counteracting influence found in the firmness, and elasticity of these parts—therefore, the anterior obliquity will be, in frequency and extent, in exact proportion to the want of resistance from these parietes—hence, it is rare in a first pregnancy;* owing to the firmness of the abdominal integuments; and of very frequent occurrence in subsequent ones. Sometimes, the extent of this obliquity is almost incredible; especially, in small women who are much upon their feet; and in those who have a deformity of pelvis. In this obliquity there will be a greater, or less correspondence of direction between the fundus and mouth of the uterus, as this deviation may be more or less excessive.

218. This obliquity is almost always a source of great inconvenience to the woman, even before labour: for after the seventh month, the fundus is so depending, and so much in advance, as to destroy the usual centre of gravity; and the woman is, when either walking or standing, obliged by constant exertion, to make herself a new one. This is accompanied often, and more especially towards the latter period of pregnancy, with severe pain in the back, loins, and hips; together, with a forcing and bearing down; urging the woman to make water, or to go to stool. I have frequently known these symptoms so severe, as to oblige the woman to keep her bed, that she might enjoy a moment's respite from their urgency—this especially happens, to short women who have had a number of children, and who have always had severe labours.

219. I have been frequently consulted for this very unpleasant situation of the uterus—but there is but one remedy for it, so far as I know; namely, to support the body and fundus, as much as can be, by a proper bandage, or dress—the most

* It may be proper to observe, I have never seen it take place in a first pregnancy.

effectual I have employed is, a pair of drawers, with a waistcoat attached to it which will lace behind. The waistcoat need not reach but a little above the umbilicus; but it must be maintained in its situation by a support from above by a pair of properly adjusted suspenders. This dress should be put on in the morning before the woman rises upon her feet; and when it is about to be applied, the fundus must be raised, by the hands of the patient being placed under it, and lifted as it were upwards; while the back part of the waistcoat is laced sufficiently tight to give support to the uterus, when left to itself. By this simple contrivance, I have seen women become active, and capable of attending to their domestic concerns, who, previously to its application, were confined to their beds.

220. The third, or left lateral obliquity, is so rare, as to scarcely merit a mention; and especially, as the inconveniences arising from it, must be nearly the same as from the right lateral; and the mode of remedying it also the same, *mutatis mutandis*.

221. It is of much practical importance, that these different deviations be known; as they are for the most part, of easy remedy; and when not, much suffering is experienced. Thus, in the right lateral obliquity, placing the woman upon her left side, will very frequently be all that is required; but should this position not bring the os uteri to the axis of the pelvis, we must aid it by the introduction of a finger within it, when it is either well dilated, or easily dilatable; and, in the *absence of pain*, gently draw it towards the symphysis pubis, and retaining it there, until a pain ensue; should the contraction of the mouth of the uterus offer much opposition to the force which would retain it at the symphysis, as just mentioned, we should gradually yield to it; but need not withdraw the finger—when relaxation has taken place, we again conduct the os uteri to the place before indicated; and maintain its position there, unless again forced to relax our effort for the reason just stated—in this manner we alternately retract, and relax, until we establish a correspondence between the axes of the fundus, mouth of the uterus, and the pelvis; when this is accomplish-

ed, we shall find the labour will advance with more rapidity, and with less pain.

222. In the second, or anterior obliquity, the same indication presents itself; namely, to procure a proper relation between the axes of the uterus and pelvis; but the mode of fulfilling it is different—in this case we place the woman upon her back; and, at the time, and under the circumstances pointed out above, (221) we, with the point of the finger, search for the os uteri towards the projection of the sacrum. In cases of extreme obliquity, it is oftentimes difficult to reach the os uteri by the ordinary mode of examination; when this happens, the pendulous belly should be raised, and supported, by an assistant, with a view to depress the os uteri—should this not succeed, and should the pains be brisk, the head will be found to sink lower and lower in the pelvis, covered by the stretched, anterior portion of the uterus. If advantage be not now taken to introduce the hand to restore the os uteri to the proper axis of the pelvis, much suffering must be endured; and much risk incurred by permitting the head to descend, covered by the uterus.

223. Whenever the os uteri cannot be reached by a well directed search in the ordinary way, we must introduce the hand well lubricated,* so that its palm may be next to the dis-

* I have seen with much pleasure, in the July and August Nos. of the Lond. Med. and Chir. Review, a most liberal examination of this work. The author of the review seems not to have clearly understood this par. (223) as he cautions against the introduction of the hand for the purpose of rectifying the bad position of the os uteri; stating, it would be a difficult or painful attempt to do so, with a first child. I agree, under such a circumstance, it might be inconvenient; but the obliquity now under consideration, I have never known to take place in a first pregnancy; consequently, the objections cannot be constantly valid: yet were it even to happen in a first labour, I should unquestionably pursue the same conduct, from a conviction, that I should expose my patient to the lesser evil.

Let me however be clearly understood to mean, that I would introduce the hand, if the labour, from its duration and force, gave me reason to believe, that the want of progress of the presenting part, was owing to the constrained position of the uterus; and when the os uteri cannot be reached by the ordinary mode of examination; consequently, when it did not correspond with the axis of the pel-

tended uterus; a finger should then be made to reach up to the neighbourhood of the projection of the sacrum, where, on some one portion of the uterine globe, the os uteri will be detected—when discovered, we should hook it upon the point of the finger, (provided it is either dilated, or easily dilatable,) and draw it towards the centre of the inferior strait—when it has followed so far, the hand may be gently withdrawn, (but not the finger from the os uteri,) and the uterus detained there, until the proper direction of the forces, and the axis of the uterus, are in correspondence. By this simple proceeding, much time and suffering are saved; and in some instances, I am well persuaded that much risk is prevented. Baudelocque has most satisfactorily illustrated the advantage of judicious interference, and the consequences of the neglect of it, by the recital of two apposite cases, to which I would refer the reader with much advantage to himself.

224. Within my own knowledge, this case has been mistaken for an occlusion of the os uteri; and upon consultation, it was determined, that the uterus should be cut through to make an artificial opening for the fœtus; they thought themselves justified in this opinion, first, by no os uteri being discoverable by the most diligent search; and secondly, by the head being about to engage under the arch of the pubes, covered by the womb: accordingly, the labia were separated, and the uterine tumour brought into view; an incision was made by a scalpel through the whole length of the exposed tumour, down to the head of the child—the liquor amnii was evacuated, and, in due course of time, the artificial opening was stretched sufficiently to give passage to the child; the woman recovered, and to the disgrace of the accoucheurs who had attended her, was delivered, *per vias naturales*, of several children afterwards—a proof that the operation was most wantonly performed.

vis. This I confess to be a situation of rare occurrence; yet it is one to be met with, as I can testify, and should be provided for, if it occur: for if the os uteri be not within reach by a common search, and it shall give rise to an operation like the one related in *par.* 224, would it not then be more than fastidious, to withhold a proper examination, from a mere repugnance to introduce the hand into the vagina, if the labour were even a first one?

225. I have found more than once, in cases of extreme anterior obliquity, that it is not sufficient for the restoration of the fundus, that the woman be merely placed upon the back: for we are also obliged to lift up, and by a properly adjusted towel or napkin, to support the pendulous belly, until the head shall occupy the inferior strait. To illustrate this, I will relate one of a number of similar cases, in which this plan was successfully employed. Mrs. O——, pregnant with her seventh child; after the seventh month, she was much afflicted with pain, and the other inconveniences, which almost always accompany this hanging of the uterus; and was obliged to wear the jacket recommended above, from which she experienced much relief. She was taken with labour-pains on the morning of the 10th of October, 1820; I was not sent for until about noon—the pains were frequent and distressing, and, upon examination per vaginam, the mouth of the uterus was found near the projection of the sacrum, and dilated to about the size of a quarter of a dollar; it was pliant and soft: during a pain, the membranes were found tense within the os uteri; but did not protrude beyond it.

226. As this was the first time I had been called to attend this patient; and the history she gave of her former labours, representing the abdomen to be equally pendulous in each, with the exception of the first; I waited several hours, (the patient being placed on her side,) for the accomplishment of the labour. During the whole of this period, the head did not advance a single line: nor could it; as the direction of the parturient efforts, carried it against the projection of the sacrum. I had several times taken occasion to recommend her being placed upon her back; but to this she constantly objected, until I urged its absolute necessity—she at length reluctantly consented: when upon her back, it was found the os uteri was not sufficiently advanced towards the centre of the superior strait; the abdomen was therefore raised, and a long towel placed against it; and it was kept in this situation, by its extremities being firmly held by two assistants—at the same time, I introduced a finger, as directed above, (221) within the edge of the os uteri, and drew it towards the symphysis pubis, and then wait-

ed for the effects of a pain—one soon followed, and, with such efficacy, as to push the head completely into the inferior strait; and by three more, it was delivered. In this case, I have every reason to believe, that many hours more might have passed without profit, had I not insisted upon the change of position; and, in my opinion, it most decidedly proves the importance of correct principles in the art of midwifery. See Baudelocque.

227. It might be considered as highly useful in such cases, that the woman lie as much as possible upon her back, even from the commencement of the labour, as it would certainly contribute to the restoration of the displaced uterus: it is moreover very important in such instances, that the bowels be opened either by some gentle medicine, or by an injection, that no accumulation of fæces may take place in the rectum.

SECT. IV.—*Of Prolapsus Uteri, when not impregnated.*

228. Of the casualties to which the uterus is liable, few are more frequent, or more troublesome, than a prolapsus of this organ; this displacement may take place at almost any period of female life; I have witnessed it in the aged matron, and I have prescribed for it, in the youthful virgin.

229. When we consider how imperfectly the ligaments attached to the uterus sustain it in situ; and when we reflect upon the debilitating discharges from the vagina, sapping as it were the very foundation of its support, we need not be surprised at the frequency, and sometimes the inveteracy of this distressing complaint. Fluor albus may be considered as one of the most frequent causes of prolapsus; it produces it by relaxing the vagina, and making it yield to the weight of the superincumbent uterus, and the impulses of the abdominal viscera. I have already remarked, when speaking of the female organs, that neither the broad, nor the round ligaments, were calculated to sustain the uterus in its natural position; if this be so, we must look to some other part for the support of this organ—and this is the vagina itself; this office of the vagina we may derive from the manner in which it is united to

the uterus, and the mode in which that canal is joined to the rectum and bladder. (80) The whole of this arrangement gives at once the idea, that the vagina is the efficient support of the uterus—it then follows, that whatever is capable of weakening the foundation, will tend to injure the superstructure: hence, leucorrhœa; frequent deliveries; too early rising after delivery; very large children; very large pelves; habitual coughs; severe pukings, and ill conducted instrumental deliveries, may all tend to this end by destroying the natural tone of this part, either by the debilitating effects of an immoderate discharge from this part, or by overstretching, preventing a return of its natural firmness, and resiliency; or by the frequently repeated concussions this part must suffer, from the abdominal viscera, by coughing and vomiting.

230. The degree of precipitation to which the uterus may be subject, will depend upon the extent of injury the vagina may have sustained from the causes above enumerated, (229) and will therefore vary, from a slight depression to an entire displacement; so that in some cases it will be but barely within the os externum.

231. The symptoms which characterize this complaint, will be modified by the greater or less descent of the uterus in the vagina—they will be intense in proportion (*cæteris paribus*) to the extent of the displacement; but in all there will be a sense of something sinking in the vagina, as if the perinæum were sustaining an unusual weight; with a dragging sensation about the hips and loins; a desire to make water, sometimes without the ability, and, when it does pass, it is reluctantly; and oftentimes painfully hot—a sense of faintness, and oftentimes a number of nervous or hysterical feelings, alarm, and almost overwhelm the patient. A pressure, and feelings resembling tenesmus, sometimes importunately demand the patient's attention, which, if she obey, almost always end in unavailing efforts. The pain in the back is sometimes extremely distressing while the patient is on her feet, and gives to her walk the appearance of great weakness in her lower extremities. A benumbing sensation shoots down the thighs; especially, when the woman first rises upon her feet; or when she changes

this position for a horizontal one. In some few instances, the woman is obliged to throw her body very much in advance, or she is obliged to support herself by placing her hands upon her thighs, when she attempts to walk. But all these unpleasant symptoms subside almost immediately, by the woman placing herself in a recumbent posture.

232. Besides the inconveniences, we have just stated, there is always a discharge of more or less matter, of a purulent appearance, from the vagina; this, in severe cases, is frequently tinged with blood, and occasionally is offensive. In addition to this, we often find the menstrual discharge also suffers some derangement: it is almost always more abundant, and often more frequent, than it should be,—this, with the accompanying leucorrhœa, very soon reduces the woman's strength to a very low ebb, and, if not relieved, entails upon her permanent ill health.

233. In married women, this complaint is readily detected, from the severe pain that coition is sure almost always to inflict; and this becomes oftentimes one of the most powerful inducements to apply for relief.

234. Notwithstanding the diagnostics of this complaint are so strongly and decidedly marked, yet they are not sufficiently so to warrant us in taking it for granted: we should never, but from a careful examination, pronounce this complaint positively present, lest we may be in error, as once happened to myself. I was consulted by a lady who had almost every symptom recorded above; I pronounced her disease to be a prolapsus of the uterus, and, without further examination, had a pessary made for its support—but, to my sad mortification, when I was about to apply it, a careful examination proved that no such condition existed, and that all the unpleasant symptoms had arisen from a thickening of the neck of the bladder.

235. A pessary of proper construction, is the only efficient remedy for this complaint—it should be as well fitted to the parts as the nature of things will permit; for much depends upon its proper adjustment. The one I prefer I have given a drawing of; and it is to be considered a modification of the

circular elastic gum pessary. I made the alteration many years ago, and I have every reason to be satisfied with its effects. It is made of silver, strongly gilt; it is hollow, and pierced with a hole, of only sufficient size to permit the escape of the discharges incident to the parts. I have three different sizes; one larger than the one of which a drawing is given, and one smaller—the medium size is most frequently required. The difference in size, is only one eighth of an inch; either in addition or in reduction. See Plate XI.

236. When this is to be placed, care should be taken that the woman's bowels shall have been freely opened, and her urine passed; and also that she should have kept her bed for an hour or two previously to the introduction of the pessary. She must be placed perfectly horizontally on the bed, and near its edge—the parts lubricated, as well as the instrument, with hog's lard; the labia must be separated by a couple of fingers, one placed on each labium,* and the pessary then pressed gently, but firmly against the os externum, directing the force downwards towards the internal face of the perinæum, and backwards in the direction of the vagina; but in such manner, as shall make the introduced edge look towards one of the sacro-iliac junctions.† We continue to press the instrument forwards in the course just pointed out, until the whole is received into the vagina. Then the finger must give it a transverse direction; or, in other words, the breadth of the pessary must correspond with the small diameter of the inferior strait—this is easily effected; and we can judge whether it be well placed by feeling for the hole in its centre, which must always correspond with the axis of the os externum.

237. The next consideration is to ascertain whether the neck of the uterus is placed in the excavation in the instrument; (for it must be remembered it should be introduced, so as its hollow shall look upwards;) this may be known by passing the finger over the edge which is under the symphysis

* It is generally best to use the left hand for this purpose. See note following.

† It will generally be found most convenient for the operator, to have the right side of his patient next to him; as in this position, he will command the introduction of the pessary with his right hand.

pubis, and depressing it a little; the finger will then readily detect the position of the neck; and, should it not be placed in the centre of the pessary, it can readily be drawn there by the extremity of the finger. When this is adjusted, we take care that the transverse position of the instrument be correct, before we withdraw the finger; the woman may now be permitted to get up.

238. A proper size of the instrument is a matter of considerable consequence; and we cannot always determine *à priori* which of the sizes will answer best—if it be too large it will give pain; and if too small, it will escape, perhaps, on the first effort to go to stool—we can ascertain when too large by its producing uneasiness in the parts; should this happen it must be removed, and one of smaller size introduced. And for fear the instrument be too small, we should direct the patient not to go to the privy, for a day or two, lest it escape from her, and be lost.

239. The relief, in many instances, is immediate; but if not, it is almost always secured, if the instrument be of a proper size, and well adjusted. It may be proper to remark, that the pessary will do no good, where the perinæum has been destroyed by a laceration.

240. Before I employ the pessary, I always make use of astringent injections for two or three weeks, with very decided advantage—the best perhaps is a solution of alum in the proportion of a half ounce to a pint of water; and after the instrument is adjusted, a few syringes full of fine soap and water should be thrown up daily—if the gilt pessary be employed, it will need removal but very rarely; not oftener than once in two, or perhaps three months; this gives it a very decided advantage over every other. The period it must be worn, must necessarily depend upon, 1st. The inveteracy of the disease; 2d. The extent of the displacement; 3d. The employment of the patient; 4th. The greater or less disposition to fluor albus. As a general rule with young women, where the complaint has not been of long standing, from three to four months will be sufficient—it will of course require a longer time, where the woman is aged, and where the complaint is of

long standing—one of my patients wore the instrument a year; but this was the longest time, I have known it to be required.

241. Besides the inconveniences just related, this condition of the uterus gives rise to a fixed pain in one of the sides, but especially the left, which has bid defiance to all general, as well as local applications, that have hitherto been employed for its removal.

242. In the complaint now alluded to, no suspicion was entertained by any of the practitioners, who had previously had the care of the cases, that it depended upon the prolapsed condition of the womb; and it is but a few years, since I was myself aware of it. But as this complaint is more common than is generally suspected; and as it cannot be removed, so far as I know, but by the use of the pessary; and especially, as I have, since the publication of the cases about to follow, received various communications, as well as thanks for their promulgation; I have thought it proper to detail them in this place. See *Philadelphia Journal of the Medical and Physical Sciences*, No. 17, p. 144.

243. CASE I. Mrs. T. aged thirty-six years, applied for my advice for a severe pain in the left side, immediately under the margin of the false ribs, extending to the spine of the ileum of the same side. She informed me she had suffered from this pain several years with more or less severity, and for which she had undergone severe medical treatment, such as bleeding, purging, blistering, leeching, &c. without the slightest benefit. The pain was not increased by respiration, pressure, or motion, but some relief was constantly experienced upon lying down; and especially, as the night advanced. She could lie in any position without any increase of inconvenience, but felt most comfortable in a bent posture.

244. I prescribed for her a variety of medicines with no better success than those who preceded me, and began seriously to despair of being any way useful to her; when, thinking the leucorrhœa, with which she was severely afflicted, might have some agency in weakening her, and believing this, from

the description of her feelings, to arise from a prolapsed uterus, I mentioned my suspicions to her, and stated the propriety of an examination to ascertain the fact.—To this she submitted, and the uterus was found low in the vagina.

245. I now ordered her some astringent injections, as I always do at first in such cases, which were persevered in for three weeks, with as much advantage as I contemplated—for the only advantage I expected from them, was to give a temporary tone to the vagina, before I should introduce a pessary.

246. At the end of three weeks, I introduced a gilt pessary, and desired my patient to place herself upon her feet—this she did, and declared she felt much more comfortable than she was wont to do, when she arose from her bed, and observed, that for the first time for several years, she was free from the pain in her side. Believing this to be only accidental, I paid but little attention to the declaration at the moment—but upon my visiting her the next day, she assured me she had had no return of it whatever, nor has she had to this moment.

247. This case made a strong impression; especially, as I could call to mind several similar affections of the side, in which I had failed to give relief, and made me determine, should another case of painful side occur, to inquire immediately into the state of the uterus. It was not long before this opportunity presented itself in a lady from the West Indies.

248. CASE II. Mrs. D. had for several years, (five,) been much afflicted by a train of severe nervous affections—she would, frequently, from the slightest causes, be thrown into violent hysterical paroxysms, which required considerable time to calm. She had a fixed pain in the left side, which would occasionally appear to swell, and became extremely painful to the touch—when this took place, she was almost certain that hysteria would follow. Her appetite was good, but her stomach could only digest certain articles—her bowels were constipated, and she had a profuse leucorrhœa of a purulent appearance. She was considerably reduced in flesh, and much debilitated.

249. She had tried a variety of remedies in the West Indies for the local affection of the side—she had been repeatedly

bled and blistered, without the smallest advantage—took mercury to a considerable extent—was freely purged and puked—but all to no purpose. When the pain was unusually severe, it was considered as spasm of the stomach. From the detail of her symptoms, I was led, however, to suspect a prolapsus of the uterus, and inquired whether this opinion had been given by her physicians at home—she said it never had been suggested; it was considered as an affection of the stomach altogether, and all remedies were addressed to it, either directly or indirectly.

250. I proposed an examination per vaginam, to which she very reluctantly consented—and that examination confirmed my first suspicion of her case. I ordered her the tincture of cantharides, and some astringent injections—also, small, but daily doses of rhubarb; and continued this plan for nearly three weeks. At the end of this time I placed the pessary. She was almost instantly relieved from the usual symptoms attending a prolapsed uterus; and also, the afflicting pain in her left side.

251. Experiencing such immediate relief, and the almost total exemption from nervous feelings, she became careless, and allowed her bowels to become, as they were wont to be, excessively costive, and in an effort to relieve herself, she discharged the pessary. This accident she concealed from her friends, until a recurrence of all her former inconveniences and pain, forced her to a confession. I was immediately sent for; and the loss of the pessary made known to me. I replaced it, and she again was restored to comfort; and now, a period of twelve months, is in the most perfect health. She is no longer troubled with hysteria—palpitation of the heart—or any of her former nervous sensations. She can eat without selection, and her bowels are perfectly regular.

252. CASE III. I was requested to visit Mrs. P. who was represented to be suffering very much from an habitual colic. Not being well, my friend, Dr. Knight, kindly visited her for me, and prescribed a dose of laudanum, &c. which procured her a tolerably good night's rest. I saw her the next morning, and found her under the distressing after effects of the lauda-

num; but comparatively easy. She gave the following history of her complaint. She was attacked about twelve years ago with a pain in her left side, which was occasionally so severe as to produce hysteria, and other disagreeable nervous affections. The pain was not augmented by pressure, cough, or respiration. She would swell, sometimes very suddenly, and then the pain was increased. She was much incommoded by exercise, or long standing, and if either were continued too long, she would become faint, and much pained. When this took place, she would be obliged to go to bed, take laudanum, and be unable to rise for several days together. She had leucorrhœa to a great extent—was much debilitated—and extremely pale—her appetite feeble—and her digestion bad.

253. She was much afflicted with headach, and pain in her back—also with a severe numbness down the thighs, after standing awhile upon her feet. She had tried a great many remedies for the period above stated; but considered herself growing worse daily.

254. Suspecting a prolapsus of the uterus to be the cause of her complaints, I proposed to ascertain it; to which she readily consented. The uterus was found very low; the os uteri could be felt just within the labia. I introduced a pessary immediately, without previous preparation, as she was obliged to go to New-York, her place of abode, the next day. She was instantly relieved by the pessary; and declared herself, in five minutes after its application, to be perfectly free from all pain and inconvenience.

255. I had the pleasure to learn this very day, (September the 25th, 1824,) that she remains perfectly well; a period of nearly four months.

256. CASE IV. Mrs. L. a very delicate woman, aged twenty-eight, after a premature labour, attended with a great expenditure of blood, was attacked with a severe cough, which seemed to threaten phthisis. She was, however, relieved of her cough, by a persevering use of remedies, and change of air; but there remained a fixed pain in the left side, together with a sense of bearing down in the pelvis, and a strong desire to make water, whenever she stood upon her feet. I was

convinced she laboured under a prolapsus, and mentioned this opinion to her friends. She would not, however, submit to having it tested by examination, but permitted an old nurse to prescribe leeching to her side, followed by blistering. She experienced no advantage from these remedies, and was at length prevailed upon to allow an examination per vaginam.

257. I was again requested to visit her, and to make the proposed search—this proved the uterus prolapsed. After due preparation, as above suggested, I applied the pessary; she was immediately relieved, and continues well to this moment.

258. These cases prove most satisfactorily that sometimes the consequences of a prolapsed uterus are more extensive and more severe than have hitherto been suspected; and also teach us, under circumstances like those above detailed, to make the necessary inquiries into the condition of the uterus. I will not pretend to account for the pain in the left side; nor decide that this is invariably the seat of this sympathetic affection, since my experience is not sufficiently ample to warrant such a deduction; I can only say, at present, it has prevailed in four consecutive cases, which are by no means to be considered as sufficient to establish a rule.

259. The pessaries I employ, are of silver, well gilt, and are made for me by Mr. John Rorer, surgeon's instrument maker, Arch street, above Fifth.

CHAPTER VIII.

OF THE SIGNS WHICH USUALLY ACCOMPANY PREGNANCY.

260. We have already remarked, that so soon as fecundation takes place, various parts sympathize either directly or indirectly with this condition of the ovarium—these sympathies or disturbances, are so uniform in their nature, and so

regular in their appearance, that they have been considered as evidences of pregnancy—the first, and most usual is the interruption of the menstruous discharge; second, nausea and vomiting; third, enlargement of the breasts; fourth, the areolæ round the nipples; fifth, the secretion of milk; sixth, the enlargement of the abdomen; seventh, the increased size of the uterus; eighth, pouting out of the navel; ninth, spitting of white frothy mucus; tenth, salivation.

261. Although almost every pregnancy has nearly the whole, or a greater part of the signs we have just enumerated, yet their union may not, in an individual case, so positively declare pregnancy, as to render it free from all doubt; especially, where the subject may become an object of judicial proceeding; and where life, character, or property may be involved in the consideration. On this account chiefly, we will spend a few words on each of these signs of pregnancy.

SECT. I.—1. *Suppression of the Menses.*

262. The suppression of the menses in a married woman, or in a woman who has had illicit commerce with a man, may justly give rise to the suspicion, that impregnation has taken place; and as a general sign may safely be looked upon as one of the most unequivocal that present themselves—yet a variety of causes, independently of pregnancy, may produce the same effect both in the married, and in the unmarried woman: 1st. Exposure to cold and damp, at the time the menses are about to appear, or immediately after they have shown themselves. 2d. Certain chronic affections, as phthisis pulmonalis, scirrhus liver, or other visceral obstructions. 3d. The operation of certain powerfully depressing passions, or emotions of the mind. And lastly, some imperfection in either the ovaries, or the uterus itself.

263. If then the absence of the menses do not positively declare pregnancy, will their presence prove that it does not exist? This question would unquestionably be answered in the affirmative by Dr. Denman, and perhaps many others; not because they have not seen coloured discharges from the va-

gina during pregnancy; but because, from a preconceived notion of the functions of the uterus, they deny these discharges to be menstrual.

264. In declaring women may menstruate after impregnation, I have no preconceived theory to support; nor am I influenced by any affectation or vanity, to differ from others; nor do I believe I am more than ordinarily prone to be captivated or misled by the marvellous; for I soberly and honestly believe in what I say, and pledge myself for the fidelity of the relation of the cases I adduce in support of my position—I am anxiously desirous of the advancement of our science; but would regret to see this attempted at the expense of truth.

265. Nothing can be more vague and unsatisfactory, than Dr. Denman's definition of menstruation; namely, "from the uterus of every healthy woman, who is not pregnant, or who does not give suck, there is a discharge of blood, at certain periods, from the time of puberty to the approach of old age." Now, from this definition it would necessarily follow, that if a woman menstruate, she must be in good health, but the experience of every body is against this conclusion—again, if a woman has a discharge of blood, while she is suckling, she must, by the terms of this definition, be either *no nurse*, or this discharge is not menstruous blood. Dr. Denman would certainly agree to this last deduction, but what proof has he to urge in support of this belief? So far as my own, and the experience of many others go, I should say, none. I would wish to be understood to mean, (whenever I use the terms, menstruous discharge, menstruous blood, menses, or any other designation,) that legitimate discharge from the uterus, which would, under the best circumstances of health in general, or condition of the uterus in particular, constitute this important function in its most perfect form—I do not mean to include discharges of blood, properly so called; and properly so being, as coming within my views and meaning; in a word, I would employ my terms to express this action, and its product, without ambiguity or subterfuge. And farther, I would wish to be understood to mean, by my terms, precisely what Dr. Denman

wishes to be understood to mean, when he speaks of "menstruation."

266. The only argument adduced by Dr. Denman in support of his hypothesis, is, "that, if a woman menstruated while pregnant, she must very often miscarry, as a part of the ovum must necessarily be detached from the uterus at each period." I would ask, why must a part of the ovum be necessarily detached to give issue to this discharge? I see no reason why this should be so; as I am persuaded, that this can happen without any such consequence. Dr. Hunter, Dr. Denman himself, Mr. Burns, Baudelocque, &c. all declare, that for the first two or three months the inferior portion of the uterus; and more especially the neck, are not always occupied by the decidua, but are left as free, and as unembarrassed, as before impregnation; of this I have no doubt; and it is from this unoccupied portion, that the menstruous discharge takes place.

267. If it be said, that this surface is insufficient in extent to yield the quantity that is ordinarily discharged, I would answer: First. I am not contending for the quantity, but the quality of the evacuation. And I admit, that, when this evacuation takes place during pregnancy, it is not so abundant as it usually is, under other circumstances: Second. That the following fact will show, how capable a small healthy portion of the internal surface of the uterus, is of yielding a quantity of menstruous blood. My friend, Dr. Coxe, the present professor of *Materia Medica*, gave me a diseased uterus, in the cavity of which there was a healthy portion of surface, not exceeding in size a common thumb-nail; and from this surface was yielded, every menstruous period, a quantity of fluid; and, as far as could be detected by its sensible properties, of a perfectly healthy quality.

268. Again, I well know a number of women, who habitually menstruate during pregnancy, until a certain period; but, when that time arrives, menstruation ceases—several have menstruated until the second, or third month; others longer; and two until the seventh month—the two last were mother and daughter. I am certain there was no mistake in the cases, to which I now refer. My interrogatories were numerous, and the an-

swers, bore all the marks of candour:—1st. The menses were regular in their returns; not suffering the slightest derangement from the impregnated condition of the uterus; second, from two to five days were employed for their completion; third, the evacuation differed in no respect from the discharge in ordinary; except, they thought it less abundant; fourth, there were no coagula in any one of these discharges; consequently, it could not be the common blood, or the blood of hæmorrhagy; fifth, in the two protracted cases, the quantity discharged regularly diminished after the fourth month, a circumstance, not perhaps difficult of explanation. I may also cite, in favour of my position, the authority of Heberden, Hosack, and Francis.*

269. With regard to nurses menstruating, every accoucheur must be familiar with the fact, as it is of frequent occurrence; happening, ten times perhaps, to the other once—here the same difficulty does not exist; for the uterus is now unoccupied; and the only matter of surprise is, that it does not more frequently occur. Though I have strenuously contended for the fact, and attempted an explanation of it, yet I am well persuaded, it is but an exception to the rule, and not an ordinary arrangement of nature.

270. In one extraordinary case, which fell under my notice in 1791, the contrary of suppression took place at pregnancy—a woman applied for advice for a long standing suppression of the menses; indeed she never had menstruated but twice; she had been married a number of months, and complained of a good deal of derangement of stomach, &c.—I prescribed some rhubarb, and steel pills. About six months after this, she again called to say that the “medicine had brought down her courses, but she was more unwell than before; her sickness and vomiting had increased, besides swelling very much in her belly;” I saw this was pretty much distended, and immediately examined it, as I suspected dropsy—but from the feel of the abdomen; the want of fluctuation; and the solidity of the tumour; I began to think it might be pregnancy, and told

* Francis's ed. of Denman, p. 231

the woman my opinion. She now became anxious to understand her situation herself; and submitted to an examination per vaginam; this proved her to be six months advanced in pregnancy: after this time, she had the regular returns of her catamenial period until the full time had expired. During the period of suckling, she was free from the discharge: she was a nurse for more than twelve months; she weaned her child, and shortly after, she was again surprised by an eruption of the menses, which, as on the former occasion, proved to be a sign of pregnancy. Whether this peculiarity pursued her still farther, I cannot say; as she removed from the neighbourhood, soon after the birth of her second child.

271. Whether there was a periodical discharge of a colourless fluid in this case, as a compensation for the regular menses, I am unable to say, as I did not examine the woman on this point, not having, at that time, the same interest as now, in such minute inquiry. I merely state the main facts, though they bid defiance to calculation, and almost to example; Deventer* being the only author, so far as I know, who has furnished a similar example.

SECT. II.—2. *Nausea and Vomiting.*

272. Nausea and vomiting, though a very usual concomitant, is very far from being a certain sign of pregnancy; it occurs sometimes where the menses have been delayed by other causes—it may, however, be considered as adding to the general testimony in proof of this condition.

SECT. III.—3. *Enlargement of the Mammæ.*

273. Enlargement of the mammæ is a very common attendant upon genuine pregnancy, though it is not uniformly so—I have known a number of cases where they did not swell even at the latter periods of gestation; nor was it until after delivery, that they gave evidence of capacity to perform their ordi-

* Chap. XV. p. 65.

nary functions; on the other hand, I have known them to enlarge considerably; where the menses were interrupted from other causes than pregnancy.

SECT. IV.—4. *Areolæ*.

274. The areolæ, which are sometimes formed round the nipples, must be considered as equivocal in any but a first pregnancy—in this case did areolæ form, I should place great dependence upon them; for so far, I have not been deceived. They do not, however, always present themselves; and may not be easily detected even when formed, in very dark-skinned women—there is always, I believe, an enlargement of the little sebaceous glands which surround the nipples, when areolæ encircle them; and they, as far as my observations go, serve to strengthen the suspicion of pregnancy. So far as I recollect, this blush is not mimicked by obstructed catamenia, or from any other cause than pregnancy. It is possible that they may attend on a false conception or mole; but of this, I have no experience. In a second, or other pregnancies, I do not place the same reliance upon this sign; as a trifling irritation, or other causes, I believe, may produce them; or they may, as I have often noticed, be absent altogether. The marks I have been speaking of, must not be confounded with the permanent stain left around the nipple after a woman has suckled a child; and great care should be taken to conduct this inquiry in such a manner as to give no false impressions.

275. For when the nipples are to be examined, the woman should open her bosom so as to expose the whole breast; she must not be suffered to draw it above the margin of her clothes by placing her hand beneath it—in doing this, the nipple oftentimes is irritated by the pressure of the fingers, which gives a new character to the appearances. I have, in a number of instances, detected pregnancy by this examination, where the patients insisted their irregularity proceeded from cold or other causes. It must, however, be remembered, that the absence of these areolæ does not prove the woman unimpregnated.

SECT. V.—5. *Formation of Milk.*

276. The formation of milk in the mammae, is coeval in some pregnant women, with their swelling; while in others it is not formed until after delivery. When this secretion takes place, it is looked upon by the vulgar as a certain sign of pregnancy; but I have oftentimes known this fluid (or at least a fluid bearing all the marks of the first formed milk) plentifully secreted without pregnancy, merely by the interruption of the menses. It has been produced in women past the period of child-bearing, and even, it is said, in men, by the repeated application of a child to the nipple. It has also been produced in a girl of eight years old, as we are informed by Baudelocque. (See his very interesting case, Vol. I. page 219.)

277. I once knew a considerable quantity of milk form in the breasts of a lady, who, though she had been married a number of years, had never been pregnant; but who at this time had been two years separated from her husband. She mentioned the fact to a female friend, who, from an impression that it augured pregnancy, told it to another friend as a great secret; who in her turn mentioned it to another friend, and thus, after having enlisted fifteen or twenty to help them to keep the secret, it got to the ears of the lady's brother. His surprise was only equalled by his rage; and, in its paroxysm, he accused his sister in the most violent and indelicate terms, of incontinency, and menaced her with most direful vengeance.

278. The lady, conscious of her innocence, desired that I should be sent for forthwith; and insisted her brother should not leave the room until I arrived; some time elapsed before this could be accomplished, as we were several miles from each other, during the yellow fever of 1798. During the whole of this time she bore his threats and revilings, with the most exemplary patience, and silence. I at length arrived; and, in the presence of the brother and a female friend, she informed me of what I have just stated; and said her object in sending for me was, to submit to such an examination as I might

judge proper to determine, whether she was pregnant or not—she would not permit her brother to leave the chamber; and I conducted the examination without his withdrawing. This thing turned out as I had anticipated, from the history given at the moment, of her previous health. I pronounced her not pregnant; and she died in about eight months after, of phthisis pulmonalis, in which disease the obstruction of the catamenia is not an unfrequent occurrence.

SECT. VI.—6. *Enlargement of the Abdomen.*

279. The enlargement of the abdomen, perhaps, is one of the most equivocal of the enumerated signs, since it may take place from a variety of causes; as 1st. Dropsical affections, of either the abdomen, uterus, or ovaries. 2d. A chronic disease of the ovarium, or uterus itself. 3d. A retention of the menses, from some accidental cause preventing their flow.* 4th. Enlargement of almost any of the abdominal viscera. 5th. The simple obstruction of the catamenia. For these reasons, but little reliance can be placed upon this circumstance alone, or even when combined with several others. For I have had the pleasure in several instances, of doing away an injurious and cruel suspicion, to which this enlargement had given rise. Within a few days past I relieved an anxious and tender mother, from an almost heart-breaking apprehension for the condition of an only, and beautiful daughter, on whom suspicion had fallen, though not quite fifteen years of age. This case, it must be confessed, combined several circumstances which rendered it one of great doubt; and without having had recourse to the most careful, and minute examination, might readily embarrass a young practitioner.

280. This young lady's case was submitted to a medical gentleman, who, from its history, and the feel of the abdomen, pronounced it to be a case of pregnancy; and advised the sorrow-stricken mother, to send her daughter immediately to the

* See Miss F.'s case, in Essays on various Subjects connected with Midwifery, page 337.

country, as the best mode of concealing her shame. Not willingly yielding to the opinion of her physician, (a young man,) and moved by the assertions of her agonized child, the mother consulted me. The history of the case was thus briefly given: "Her daughter commenced, between twelve and thirteen, to menstruate regularly, and continued to do so until late last fall;* at which time she had a very smart attack of the prevailing epidemic; of this she was, however, relieved by the usual remedies—since that time, she has never menstruated; she gradually swelled in the belly; her stomach was much affected; especially, in the morning; the breasts were a little enlarged."

281. I examined the mammæ, and found them a little tumid, but without areolæ; the abdomen was much enlarged, tense, and hard, in consequence of a large tumour which was confined to the left side of this cavity, and which could be easily traced throughout its right and inferior margin, and proved (at least in my opinion) to be an enlarged spleen; no tumour was found in the pubic region; consequently, the uterus was not found enlarged; the navel was sunk; and upon an attempt to pass the finger into the vagina, I found so much evidence of her continency, that I did not persevere, being perfectly satisfied, from the condition of the parts, that she was a virgin. I unhesitatingly, and with no common degree of pleasure, declared the poor child to be free from the charge, so heedlessly, and cruelly preferred against her.

SECT. VII.—7. *Increased size of the Uterus.*

282. An increased size of the uterus, especially in young women, either married, or single, will necessarily create a suspicion that it may arise from pregnancy; particularly if its surface, as distinguished through the abdominal parietes, be uniformly round, smooth, and of an elastic feel; and if there be combined with this, several of the rational signs of pregnancy—but it is far from being infallible. This distention of the uterus may arise, 1st. from a dropsical state of the uterus; 2d. from disease within its cavity, as tumours, or excrescences;

3d. from moles or false conceptions; 4th. from a retention of the menstruous discharge from the occlusion of the os tincæ, &c. The case referred to (279) of Miss F. is strictly in point; and was one among others, where injurious surmises were most cruelly entertained for a long time.

SECT. VIII.—8. *Pouting out of the Navel.*

283. Pouting out of the navel, if it take place, only proves that there is something behind it, which makes it protrude; but it by no means follows, that it is the uterus distended by pregnancy: I believe it invariably takes place in pregnancy after the sixth month, or sometimes even earlier; and I think the following conclusions may pretty safely be drawn from this condition of the navel: 1st. If the woman be pregnant, it will, by its projection, indicate the advancement to be at least six months; yet the woman may be advanced to the fifth or a little beyond it, without this part undergoing a change; 2d. If this part protrude, it will by no means follow, without the concurrence of other signs, that the woman is pregnant; for this may happen, *a*, from any cause, independently of pregnancy, that is capable of distending the uterus to a size equal to the sixth or seventh month; *b*, from ascites, when the abdomen is much stretched; *c*, from chronic enlargements of the liver, and, perhaps of some other of the abdominal viscera. When this part does not protrude, we are not to conclude that the woman is not pregnant; as it requires the presence of the uterus behind it, to make it appear; and, therefore, whatever is capable of preventing its presence immediately behind the navel, as insufficient development, or its sinking unusually low in the pelvis from the extraordinary size of this cavity, is capable of interrupting this protrusion.

SECT. IX.—9. *Spitting of Frothy Saliva.*

284. Spitting of very white frothy mucus, is by no means a constant attendant upon pregnancy; but when it does occur, it very certainly points out this condition. This saliva is very

tenacious, and very difficult to deliver from the mouth; it is extremely white and a little frothy, and, when discharged upon the floor, assumes a round shape, and about the size of a shilling piece: hence the expression, that the person is spitting English shillings, or cotton; and, so far as I have remarked, it is almost a certain sign of pregnancy.

SECT. X.—10. *Salivation.*

285. Salivation, like the sign just mentioned, is not a constant attendant, except in a very moderate degree, upon pregnancy; indeed it is even more rare, and seldom exists in excess: but when it does happen, it very decidedly points out this condition—I do not remember to have observed this symptom from any other state of the uterus.

286. From what has been said, it appears, that the rational signs (as they have been termed) of pregnancy may exist in stronger or weaker combination, without proving it unequivocally; though they may leave little or no room for rational doubt of its existence. There is, then, but one certain mark, by which pregnancy can be absolutely determined—and that is, the movements of the fœtus itself within the uterus. In judging of this, we are not to rely upon the *ipsa dixit* of the woman, as she may be deceived, or have motives to mislead; upon this point, therefore, we must determine for ourselves.

287. To do this, it is necessary to place the hand upon the bare abdomen, and wait for the motion of the child; or we may endeavour to provoke it, by having the hand either hot or cold according to the season, as recommended by Morgagni; and as has been often practised successfully by myself. Should the weather be hot, we should have the temperature of the hand reduced by cold water, or ice; or, if the weather be cold, have the temperature raised, by placing the hand in warm water for a short time. By these means, we rarely fail to excite the fœtus to action; and we may succeed in having it even pretty frequently repeated, by repeating the same means. Of this fact I am perfectly certain; but to account for it, is beyond my ingenuity. By touching *per vaginam*, we may ascertain, that

the uterus contains a solid body within it; but we cannot by this method determine whether it be a living being, or an imperfectly organized mass.

288. Will the absence of all motion within the uterus determine the woman not to be pregnant, when a sufficient number of the rational signs combine to render it more than probable that she is? I must answer this question in the negative; as instances have occurred to others,* and one to myself, where the motions of the child were never perceived during the whole period of utero-gestation. In such cases, an examination per vaginam will aid much; especially, at the latter period of pregnancy—the state of development of the uterus; the feel of the substance contained in it; the condition of the os tinæ; the height of the fundus, &c. will, when taken into consideration, and found perfectly to correspond with the woman's history of herself, prevent any serious error, in my estimate.

SECT. XI.—*Of Quickening.*

289. By quickening, we are to understand the first perception the woman has of the child's muscular action. It is presumable, that it has in a very feeble manner exerted itself very often before it is or can be noticed by the mother; and the first moment that this action becomes obvious to her, must be at very different periods of pregnancy, in different women, owing to the greater or less strength of the fœtus; the quantity of the liquor amnii; and the sensibility of the uterus itself. I once knew a lady of great nervous sensibility, who constantly perceived the motions of her children at twelve weeks; others are longer, and may be said to be at every period between the twelfth week and seventh month—the medium period is the most common; and when I declare the most usual to be at the fourth month, I am perhaps as near the truth as can well be ascertained.

290. An anonymous writer in the Medical and Physical Journal for June, 1812, under the name of "Medicus," has

* Levret, as quoted by Baudelocque, Vol. I. p. 240.

puzzled himself, besides appearing willing to puzzle every body else, by a learned attempt to explain the cause of quickening, by physical and metaphysical reasoning upon the subject. He evidently confounds two circumstances totally distinct (if one of them really has an existence) in their natures, under one general term—namely, the first perceptible motion of the fœtus, is confounded with an imaginary change in the uterus, at the period the fundus usually appears above the superior strait. The disposition to syncope, which is sometimes felt by women at about the fourth month, he calls quickening; and declares it to be owing to the sudden escape of the uterus from restraint to liberty, by mounting above the brim of the pelvis, and their enjoying greater freedom, and repose. He will not admit that any motion of the child constitutes quickening; but that it essentially depends upon the change of position of the uterus itself. He rejects the common and “ancient” explanation of quickening, for the following reasons:

291. 1st. “The sensation of quickening (by which he does not wish to be understood to mean any muscular action of the fœtus) is not constant and universal; some women never experience it, others with some of their children only.”

292. 2d. “It has a distinct character from any subsequent motion of the child; no woman ever admits that it resembles, in the slightest degree, the struggles of the fœtus.”

293. 3d. “This sensation is never repeated in the same pregnancy, which must happen if it arose from the motion of the child.”

294. 4th. “It is totally incomprehensible that any motion of which the fœtus is capable, in the fourth month, should communicate such a sensation to the mother as to produce *delirium animi*.”

295. The whole of this argument goes to declare, that when the uterus, suddenly overcomes any restraint to its passing out of the brim of the pelvis, the woman is wont to feel faint; and he confounds this feeling (if it exist) with the sensation which all women (as a general rule) experience, after the fœtus has acquired sufficient strength to make itself felt; and which increases in force, and is multiplied in frequency, as gestation

advances; or, in other words, he calls the sensation created by the uterus suddenly rising above the superior strait, quickening; but declares it to be distinct from the motions of the fœtus—in this I most fully agree; as I do not believe, that the uterus is ever so suddenly elevated into the abdomen, as to produce the sensation of faintness—for I have never been convinced of it, by any inquiry I have made from women, who, I should suppose, were the best judges upon this subject—but these inquiries have resulted in the establishment of the following facts:—1st. That all women experience (some sooner, others later) the sensation which they term quickening; 2d. In some, this feeling is accompanied by a sensation of faintness, or rather of sinking, as they express it; and this is experienced, in some few instances, whenever the motion of the child is repeated, until after the fifth month, sometimes; 3d. That those who “quicken” very early, are most obnoxious to this enfeebling sensation; 4th. That, when the feeling of faintness comes on, they are *certain* it is always produced by the *motions of the child itself*; 5th. That none have ever been sensible of any disposition to deliquium, but from the stirrings of the fœtus.

296. These facts are conclusive, that the sensation in question, is the result of the muscular agitations of the child; and that the explanation of “Medicus,” is at variance with this opinion; consequently, not calculated to explain the phenomenon. Besides, the circumstance mentioned by “Medicus,” of the sudden eruption of the uterus from the pelvic cavity, has no existence; and even if it were true, I do not see why this change of position is to be confounded with the absolute stirrings of the fœtus. If he can make out his position, that the uterus suddenly surmounts certain difficulties in its attempt to rise higher in the pelvis; and that this is accompanied by deliquium animi, it is well; but, for the sake of precision, and of logic, do not let him confound it with quickening.

297. Besides, there is a want of ingenuousness in the statement of facts by “Medicus;” for we are yet to discover, that any one has explained the term “quickenings,” by saying it

was owing "to life being suddenly imparted to the embryo,"—this would in itself be absurd, and contrary to all belief upon the subject; for I do not hazard much, when I say, that there is no one at present, nor perhaps ever has been, who supposed that the embryo did not possess life from the instant it obeyed the stimulus of the male semen for development; and for this plain and simple reason; that if it were not alive, it must be dead; and if dead, it must be cast off by the womb, as an extraneous substance. There must be a period when the embryo is not sufficiently developed, to move; another when this can be but feebly, and imperfectly performed; and another when it can move with sufficient force to give evidence of this increase of power; and this moment, is instantly recognised by the mother; who then says she has "quickened;" and that this novel sensation should be accompanied by novel effects, and even sometimes by syncope, is no way surprising. The older writers, merely wished to be understood by the term quickening, that moment at which the embryo gave the first physical proof of life; and not the moment it received it.

298. That an abatement of the severity of the symptoms of pregnancy, takes place about the period of "quickenings," I am well convinced; and that this takes place with greater certainty when the uterus can repose itself upon the anterior portion of the pelvis; yet I am unwilling to admit, that this change is owing to the sudden rising of the uterus above the brim of the pelvis, as is declared by "Medicus:" 1st. Because, I do not know that this has ever taken place as a natural arrangement; 2d. And because if it did, it might create the unpleasant sensations agreed upon by "Medicus."

299. To me, the melioration of symptoms at this period, appears to depend upon two circumstances mainly: 1st. Upon the uterus being enabled to repose upon the symphysis pubis and its neighbourhood; therefore, no longer liable to be depressed in the cavity of the pelvis, by the often repeated impulses of the abdominal viscera. 2d. To the sensibility, and irritability, of the uterus being diminished, by the frequent repetitions of the child's motions; in this, obeying the law, which seems to govern every other portion of the system as regards

the operation of stimuli, by becoming less and less sensible to them, in proportion to the frequency of their application: hence, parts pretty uniformly sympathizing with the uterus when impregnated, will cease to do so, or will do so in a more moderate degree, as that viscus shall be itself less affected.

SECT. XII.—Of Vomiting.

300. The morning sickness, and vomiting of pregnant women is one of the most common, and sometimes, one of the severest of their many distresses. It commonly occurs upon their leaving their beds, and frequently harasses them for two or three succeeding hours. The matter thrown up is usually a sour, tenacious mucus; at other times, a thin, extremely acid water, which now and then even excoriates the fauces, and sets "the teeth on edge." At other times, bile accompanies the discharge, even in considerable quantities. For the most part, this vomiting is attended, with confined bowels; the appetite is either voracious, or nearly destroyed; and almost always, whimsical; and, what is oftentimes remarkable at such times, the most unpromising, and apparently preposterous article, will not only be most acceptable to it, but best suited to its wayward humour.

301. The vomitings, however, rarely proceed to any very dangerous lengths; and as rarely, require strict medical treatment; a pro re nata plan is for the most part all that is required. I have found a glass of warm water, or camomile tea, taken so soon as nausea is felt, very frequently abridge the sickness, by immediately inducing vomiting, or by composing the disturbed stomach. Should much acidity prevail at such times, a glass of soda water will have a very good effect. Should the bowels be in fault by their tardiness, small doses of calcined magnesia in a little milk, will be found highly useful. If nausea, and frequent vomitings occur during the day, and the food be thrown up, the patient should be confined to a table spoonful of milk every fifteen or twenty minutes, and no one thing beside; this rarely fails to tranquillize the stomach,

and enable it to take food with advantage—we may occasionally add a spoonful of lime water to the milk, until the stomach be relieved.

302. But such is the predominance of acid, that none of the antacids is capable of overcoming it, though administered with a liberal, or even a daring hand. I rarely persevere in the use of the alkaline remedies, when I find that considerable doses will scarcely have a temporary effect; when this is the case, I have recourse to acids themselves for the relief of this most distressing state of stomach. I have employed both vegetable and mineral, with perhaps about equal success; but the vegetable will in general merit the preference, on account of the teeth. I have, in several instances, confined patients for days together upon lemon-juice and water, with the most decided advantage.*

303. In two instances I have witnessed the best effects from substituting a glass of iced water, for tea or coffee in the morning, by which the patients were enabled to retain a cracker or two upon their stomach; which would not have been the case, had they taken either of the other substances. When the vomiting is so persevering as to discharge every thing from the stomach as fast as taken in, the bowels should be evacuated daily, by mild injections; and permitting these to act rather by their bulk, than by their stimulus. Should the pulse be full, as it almost always is under these circumstances, a little blood should be taken from the arm; more especially, if head-ach attend. Should pain, and a sensation of burning about the region of the stomach be felt, much good is experienced by the application of a few leeches to the part, so as to abstract five or six ounces of blood.

304. I have repeatedly found much benefit from the use of the spirit of turpentine three or four times a day, in twenty-drop doses. This medicine is very easily taken if mixed in cold, sweetened water. When the system is not excited to febrile action, and where the stomach rejects every thing al-

* One lady took the juice of a dozen of lemons daily, for many days together, with the most decided advantage, and nothing beside.

most as soon as swallowed, I have often known a table spoonful of clove tea* act most promptly and successfully.

305. With respect to the diet of patients so circumstanced, it would be in vain to point it out; as any plan we could devise would scarcely apply to any two patients—I generally direct the use of such articles, as their experience has proved best suited to their condition; and sometimes, it is truly astonishing to observe, the waywardness of the stomach upon such occasions. I have lately had a patient who could retain no article, except Indian meal cakes, baked pretty hard upon a board—these uniformly kept down, and she literally lived upon them for weeks.

SECT. XIII.—*Of Heartburn.*

306. This very distressing symptom is sometimes one of the first the woman experiences after impregnation—at other times it does not make its appearance until gestation is pretty well advanced; and sometimes is absent altogether. It is almost always very distressing, and very difficult to subdue. I have known large and repeated doses of the alkalies exhibited with scarcely a temporary truce, much less a permanent benefit; in consequence of which, I have for many years past ceased to urge them in large quantities, where I find smaller ones producing no effect. In such cases, I think it better to abandon the attempt to neutralize the acid, and begin with the use of the acids, so soon as the other class of remedies shall prove useless.

307. I have already, under the head of vomiting, mentioned the advantage of acids, (302) to counteract that of the stomach, and they well deserve a trial. The vitriolic, or the citric, may be used freely in such cases, but the latter, as I have already observed, merits the preference.

308. Magnesia and chalk are in familiar use; and in moderate cases are every way competent to the exigency, especially the former. Magnesia should always be preferred to chalk, except (which very rarely happens) a looseness of bowels ac-

* Clove tea is made by bruising about twenty of them, and then pouring a half pint of boiling water on them, and permitted to stand covered up until cool.

companies this complaint. The chalk is never so pure as magnesia, and is always sure to constipate the bowels—sometimes it is used in immoderate quantities, but always with manifest injury. I formerly attended a lady with several children, who was in the habit of eating chalk during her whole term of pregnancy; she used it in such excessive quantities, as to render the bowels almost useless. I have often known her without an evacuation for ten or twelve days together, and then it was only procured by enemata; the stools were literally nothing but chalk. Her calculation, I well remember, was three half pecks for each pregnancy—she became as white nearly as chalk itself; and it eventually destroyed her, by so deranging her stomach, that it would retain nothing upon it.

309. When heartburn is moderate, it may be relieved by soda water, lime water and milk, and the occasional use of magnesia. The operation of these substances in the cure of an acid stomach is easily understood; but the action of a few blanched almonds, or a few roasted ground-nuts, is not so easily explained; yet both of these substances, I have known most successfully employed where the complaint was mild—they should be taken from time to time, as the acidity may prevail.

310. Confining the patient to any one article of diet of either the vegetable or animal kind, is sometimes productive of great advantage; as simple boiled rice; oysters; milk or cream: or very sweet butter, and stale bread, &c.

311. Costiveness is very common, and should be carefully guarded against; the diet should be made to conform to this end, whenever practicable; where the stomach will bear bread or biscuit, they should be made of unbolted flour. The ship-bread, as it is called, I have found answer occasionally a valuable purpose—but where this is not sufficient, or it cannot be used, the following pills may be taken with great advantage, if properly persevered in:—

R Gum aloes. suc. ʒss.
 Pulv. Rhæi. ʒi.
 Ol. Caryoph. gut. iv.
 Sapo. Venet. gr. viij.
 Syr. Rhæi. q. s. M. f. pil. xxx.

One of these every night if necessary ; or every other night, as may be most eligible or necessary.

SECT. XIV.—*Of Salivation.*

312. The sympathy between the salivary glands and the impregnated uterus, is perhaps as remarkable as any that takes place. In a very moderate degree (285) it may be considered as a pretty general attendant upon gestation ; as almost all women, at such times, have more than an ordinary quantity of saliva secreted. In this mild form it will scarcely require attention ; or it may even pass without notice. But it becomes very distressing, and enfeebling when excessive. It is almost always accompanied with acidity of stomach, and constipation of bowels ; the fluid discharged from the mouth, for the most part, is perfectly colourless, and transparent ; at other times it is more tenacious and frothy, and the quantity poured out is sometimes incredibly profuse. It almost always has an unpleasant taste ; though not attended with an offensive smell ;—it keeps the stomach in a state of constant irritation, and not unfrequently provokes puking ; especially, if the saliva be tenacious, and require an effort to discharge it. At night it is very troublesome ; interrupting sleep, from the necessity of frequently emptying the mouth.

313. If it continue long, the woman becomes weak, from the quantity of fluid poured from the mouth, as well as the inability it produces to take and retain sufficient food upon the stomach. I have never known this complaint prove fatal ; though I have witnessed two cases in which the patients were in great jeopardy—one of which I will relate, as it is remarkable for the extent to which it ran.

314. I was called upon to prescribe for Mrs. I. who was advanced to the fifth month of her pregnancy. At the second month she was attacked by a profuse salivation ; she discharged daily from one, to three quarts of saliva ; and was at the same time harassed, by incessant nausea, and frequent vomitings—so irritable was the stomach, that it rejected almost instantly any thing that was put into it ; she now became ex-

tremely debilitated; so much so, as to be unable to keep out of bed; and, when she did attempt to sit up, would faint, if not quickly replaced.

315. From a belief that the affection might be local, astringent gargles were freely employed; but with marked disadvantage. A large blister was next applied to the back of the neck, with decided, but transient benefit—that is, the salivary discharge was less, the nausea diminished, and the vomiting less frequent; but this favourable impression was but of three or four days duration: for, after this time, all the unpleasant symptoms returned with their former severity. An emetic of ipecacuanha was now exhibited, followed by a cathartic of rhubarb and magnesia, without the smallest benefit;—soda water, lime water and milk, milk itself, &c. were, in turn unavailingly employed. I now put my patient upon a diet altogether of animal substances, and ordered ten drops of laudanum morning and evening, and fifteen at bed-time: this plan succeeded most perfectly in the course of a few days; nausea and vomiting ceased, and the discharge was reduced to less than a pint per diem; and, perhaps, the force of habit had no inconsiderable agency in the production of this quantity. The bowels, during this plan, were kept open by the extract of butter-nut and rhubarb, in the form of pills. This lady never had any return of this complaint in her subsequent pregnancies.

316. As a general plan of treatment in this complaint, either when moderate, or severe, I endeavour to destroy the acidity of the stomach, by the various antacids; to keep the bowels free, by the frequent use of magnesia; rinsing the mouth frequently with lime water, and the use of solid animal food; together with a strict injunction to the patient to resist the desire to discharge the saliva from the mouth, as much as possible.

317. This complaint, when moderate, almost always abates, if it does not cease altogether, after the fifth or sixth month; but, when severe, its period is doubtful. A lady informed me, that this affection continued with considerable force, during the whole period of gestation in one of her pregnancies.

SECT. XV.—*Of Fluor Albus.*

318. This complaint is a very frequent attendant upon pregnancy, though the woman may not be subject to it at other times; when connected with pregnancy, it seems to be owing to the increased flow of blood to these parts; and almost always assumes a mild form. When this discharge, as an attendant upon pregnancy, is in excess, it merits the attention of the practitioner, though he must not expect, nay, must not attempt, a radical cure of it, unless it can be accomplished by mild local applications, and a strict attention to cleanliness. I am persuaded that much mischief has arisen from the attempts to cure this complaint during gestation, when, for its accomplishment, the active remedy recommended by Mr. Robertson, has been employed: I therefore, during this period, confine myself to a temporizing plan, from a conviction, a more active one would be injurious. For this reason, I simply direct washing the parts three or four times a day with luke-warm water; and throwing into the vagina, by means of a syringe, a weak solution of the acetate of lead; that is, a scruple to eight ounces of water. Previously to using the injection, the parts should be well washed with a weak solution of fine soap in warm water, by throwing up the vagina a few syringes full of it in quick succession, and these followed by the saturnine solution. Much advantage is derived from this last plan; for I am convinced it will afford relief, when the non-observance of it might not be followed by the smallest benefit.

319. I am aware that I differ from almost every practitioner, in recommending warm water as a common wash; but I think I am recommending the better plan; it is one I have pursued for the last thirty years; and I am abundantly convinced of its superiority.

320. I rarely recommend constitutional remedies, in this kind of fluor albus; the pulse must be controlled by occasional blood-letting, when necessary; and the bowels carefully regulated—should much acidity of stomach attend, give magnesia; or magnesia and prepared oyster-shells, when the bowels are disposed to looseness.

321. My plan is very different, when the patient is not pregnant; I shall therefore say a few words upon this subject.

322. Leucorrhœa is one of the most common complaints to which the female is subject; and consists in an increased, and oftentimes altered secretion, from the vaginal vessels, and perhaps of the uterus itself. Most systematic writers locate this complaint in the uterus; but I am disposed to believe, this is comparatively rare. There are few women who bear children that escape this complaint, and who do not find it almost always increased by pregnancy; now were this disease situated within the uterus, it would cease so soon as impregnation had taken place. It is in vain to say, that when the uterus is impregnated, the discharge does stop from this place, but is increased from the vagina; unless some good reason should be assigned, or some striking and apposite analogy be furnished, for this exchange of function—I can see no such good reason, or analogy.

323. I have never been perfectly satisfied, but in three or four cases, of the very many that have been under my care, that the discharge in question proceeded from the cavity of the uterus—in all these, the following peculiarities were present. 1st. During the night, there was no discharge whatever; but upon rising, there would be a very abundant one of a glairy, tenacious substance, and sometimes mixed with some, of a purulent appearance. 2d. That during the day, when it did escape, it was always suddenly, and accompanied by a sensation of effort, within. 3d. That when a piece of sponge was introduced into the vagina at night, with a view to determining the point, it was never found filled with the kind of matter, that very quickly issued, when this was removed. 4th. All these cases I found to be incurable, though capable of relief. 5th. All the women were barren.

324. These considerations make me believe, that fluor albus has its seat for the most part in the vagina. I believe farther, that it is almost always local; but by excess of quantity, or peculiarity of quality, the system frequently becomes involved. I am not prepared to decide on the nature of the irritation which keeps up this discharge; but I believe it to consist in an

altered action of the vaginal lacunæ, or glands, which, in a state of health furnish the moisture so important to this part. When speaking of this complaint, I would wish to be understood, not to include the discharge from this part, which is symptomatic of some derangement of the proper substance of the uterus, or that, which always accompanies a prolapsus of this organ.

325. The idiopathic forms of this disease, may be divided into three stages; each of which requires a little difference of management; in the first, or most simple form, the matter discharged is glairy and transparent, or resembling a thin starch; this very often accumulates in considerable quantity, from its tenacity, within the vagina, and is then suddenly discharged, either by its own weight, or from some sudden exertion of the woman; especially, upon stooping, or lifting a weight—this never becomes acrid; unless, there is the most reprehensible neglect of cleanliness; nor, so far as I have observed, is the system implicated, though it may take place in women constitutionally plethoric.

326. I always commence by directing, that the parts be regularly washed with warm water, three or four times a day—if the patient be plethoric, I cause her to be well purged; confine her to a milk and vegetable diet; and sometimes, order her to lose blood—when the pulse is sufficiently reduced by these means, or if the pulse be in a proper condition without these means, the tincture of cantharides is to be given; of this I direct thirty drops every morning, noon, and evening, in a little sugar and water; increasing the dose every third day, five drops at a time, until strangury* is produced, unless the disease is arrested, which is not unfrequently the case, before this

* I always direct my patient to desist from the use of the tincture, so soon as she feels the approach of strangury, and not to resume it until all uneasiness disappears. If the strangury be severe, direct the free use of flaxseed tea, barley water, or gum Arabic water—and five-and-thirty drops of laudanum. Should this not succeed, direct an enema of a gill of thin starch, a tea spoonful of laudanum, and thirty grains of finely powdered camphor—as far as I recollect, this enema has never failed. It may be also proper to mention, that the tincture I employ, is fifty per cent. stronger, than the ordinary tincture of the shops; or in other words, where they use two drachms, I use three.

symptom appears. Should the complaint not yield to the first strangury, I am not discouraged; but re-commence the tincture at the original dose of thirty drops, and increase it as before, until a difficulty in making water is again experienced—it rarely, however, withstands the second irritation of the bladder.

327. Astringent injections are to be employed, so soon as a change is observed in the discharge, by its becoming thinner, and more abundant; *but never until then*; should this require three or four stranguries to effect it. The best kinds of astringent injections, are the acetate of zinc, in the proportion, of five or six grains to the ounce of water; or the sulphate of copper in solution, in the proportion of a scruple to half a drachm, to eight ounces of water; either of these may be employed three times a day; taking care to wash out the vagina with soap and water, as above directed. (318)

328. This plan, when properly conducted, or sufficiently persevered in, rarely fails to effect a cure—and I must here declare, the high confidence I have in this medicine; for it rarely has failed in my hands. There is reason to believe, that when this medicine is not successful, it is chiefly owing to not giving it in sufficient quantities, from an apprehension it may produce mischief—I can most honestly say, I have never witnessed any other than a temporary inconvenience from this article; and I have given it, in what might at first sight appear hazardous doses—in two instances, the dose was gradually raised to two hundred drops, three times a day, without producing strangury, until this quantity had been persevered in for several days successively. Injections aid the operation of this medicine much, if employed at the proper moment—this moment I have indicated above (327)—I never use them, it may be proper to observe, in young girls, for reasons sufficiently obvious.

329. In the second stage, the matter discharged has a white, or yellowish, purulent appearance—it is usually more abundant than the discharge of the first stage; and is constantly leaving the vagina, by a pretty uniform stillicidium. If proper attention be not paid to cleanliness, it may become offensive, or may

even excoriate—this state is almost always accompanied with pain in the back, hips, and in the region of the pubes; the woman's complexion is generally sallow; and when the discharge is excessive, she becomes subject to a train of nervous symptoms, that are both troublesome to the patient, and difficult of management to the physician.

330. The system is almost always involved in this second stage; for if the pulse be carefully examined, it will be found hard, wiry, and irritated—in this stage, as in the former, the most scrupulous attention to cleanliness should be observed—I purge most commonly; confine the patient to a vegetable diet; and sometimes, bleed—I am sure, that in every stage of fluor albus, time is saved, as well as a material point gained, by a pretty brisk catharsis, in the commencement of the curative plan; it should therefore never be neglected. When the pulse is in a proper state to bear the tincture of cantharides, it must be exhibited as above directed; subject to the same restrictions and distinctions, (326) but with this difference; that we may commence advantageously in proper subjects, with injections; but they should be of the sedative kind; a weak solution of the acetate of lead is perhaps the best; this may be used several times a day, preceded by the soap and water, as just mentioned. (318)

331. In the third stage, there is an aggravation of all the symptoms of the second; the discharge is of a greenish colour, and is frequently tinged with blood—I consider both the last-named forms, but exalted degrees of the first; that is, the inflammation is greater in their numerical order; in the last, therefore, we have more to contend with, than in the second; and more in the second, than in the first—but the same general directions are applicable to all—for nothing can compensate for the neglect of cleanliness—this must, therefore, be insisted on; the bowels must be purged, and as the system is more frequently and extensively implicated in this, than in the former stages, we are oftener obliged to bleed, and enforce a strict observance of a vegetable diet. We may, as in the second stage, where the subject will permit, commence with the injections of a weak solution of the acetate of lead; then perseveringly employ the can-

tharides—in using this tincture in this stage, I depart from the method just recommended, if the disease be of long standing, by more gradually increasing the dose, or making the intervals of increase two or three days longer. My reason for this is, that the system may not too suddenly be affected by it; for I have observed, that when strangury is hastily induced, the effects are neither so satisfactory, nor so permanent, as when more slowly brought on—It may, however, be remarked in general, that the more susceptible the system is of the influence of this medicine, the more easily the cure is accomplished.

332. As on former occasions, I do not use the astringent injections until the sign for their employment shows itself; (327) that is, an increase and thinning of the discharge; even the first injections of this kind should be rather more feeble than those formerly directed; but the strength must be increased, as the parts become more accustomed to them. I go on, iterum iterumque, to renew the strangury, should the first not be sufficient. Nor am I to be discouraged, if the complaint does not yield to several; for I am very rarely disappointed in the operation of this medicine, when sufficiently persevered in.

333. I, however, confess, that I am occasionally not successful; but cannot this most truly be said, of every known remedy? I have now and then succeeded with the balsam copaiva after the other has been fully tried without advantage; and I also have effected cures in some obstinate cases, by the use of alum and nitre—five grains of alum and ten of nitre, given three times a day, have proved very successful after other remedies have failed.

334. The discharge which attends the prolapsus uteri is owing altogether, or at least in great part, to the mechanical irritation the surface of the vagina suffers, from this displaced organ, and does not come under our present consideration; I have adverted to this when speaking of the disorder which produces it; and the same may be said of the sympathetic production of fluor albus, from a diseased condition of the uterus itself.

SECT. XVI.—*Of Pruritus.*

335. One of the most troublesome and distressing complaints to which the female is subject, is the pruritus or itching of the pudendum. Women who are not pregnant, are liable to this complaint; though not equally with those who are pregnant; in both, the desire to scratch is so indomitable, as sometimes to put decency at defiance.

336. Dr. Denman says, that those women who carry dead children are more subject to this disease, than those who carry living children. This remark is not confirmed by my own experience. I have known many instances, where dead children were carried, without this disease being present; and I have known a number of cases of pruritus, where the child was certainly alive. The precise nature of this affection, has not hitherto been pointed out; and accident furnished me with an opportunity of detecting the condition of the parts, where this complaint was in full force.

337. A lady, whose husband was more notorious for his gallantries, than his domestic virtues, was attacked in the incipient stage of pregnancy with an intolerable itching in the pudendum, and even within the os externum and vagina. Suspecting the affection to be venereal, I was sent for; and she giving such an account of her feelings as to make me think it might truly be the case, I proposed an examination of the parts; which was finally acceded to. Upon separating the labia, the whole face of the vulva, the os externum, and as much of the vagina as could be viewed, were covered with an incrustation of aphthæ. I assured the patient, her disease was not what she suspected, but one, I hoped, that could quickly be removed. I accordingly ordered a strong solution of borax in water, and requested her to wash the parts with it four or five times a day, as well as throw it up the vagina. She did so; and was perfectly well in twenty-four hours.

338. I was led to the employment of the borax in this case, from the analogy which the thrush in children furnished me with; and its success since, has led me to regard it as a certain

remedy in this complaint—I have had nine cases within the last five or six years, in all of which it proved completely successful; but not with equal speed. Two of the cases just mentioned were pretty obstinate, and especially one; in both, I was obliged to bleed and purge liberally; and to confine the patients to a low diet; but in one, I was also under the necessity of applying leeches to the part, before the disease would yield—I thought that small doses of magnesia, with the daily use of lime water and milk, were useful in this case. But in the others, the disease yielded almost immediately, to the simple application of the borax and water.

339. Where this complaint proves at all obstinate, depletion adds very much to the influence of the borax; I therefore would advise attention to this circumstance. I am not certain, however, that in every case of pruritus there exists this aphthous efflorescence; but think it probable. I have had but two opportunities of examining the parts, under such circumstances; in both of which, this condition obtained.

CHAPTER IX.

OF DERANGED MENSTRUATION.

340. THE derangements to which this discharge is liable, are as follows:—

- 1st. Its too tardy appearance.
- 2d. Its interruption after having been established, commonly called the suppression of the menses.
- 3d. Its excess of quantity.
- 4th. Its painful production.
- 5th. Its irregularity towards the decline of life.

SECT. I.—1. *Tardy Appearance of the Menses.*

341. The average period for the first appearance of the menses may be, between the fourteenth and the fifteenth year

in this country; when they fail at this time, much anxiety is evinced on the part of friends, for the situation of the girl so circumstanced; and every indisposition with which she may be attacked, is sure to be attributed to this cause. In the hope of provoking the menses, now due as they suppose, the patient is almost always condemned to medical discipline; and but too frequently injured by submitting to its rules. Nothing perhaps would be so difficult to overcome, as the vulgar prejudices entertained upon the necessity of this discharge, at a certain period of female life; (and this determined by the number of years which have passed,) if we were so idle as to attempt a reformation. Women upon this subject, are but too often incorrigibly wrong-headed, and we are obliged to yield for the patient's sake, an appearance of acquiescence. In many instances, did we attempt to convince them of their error, (however egregious that error might be,) it would not only be labour lost, but, what is worse, would but too often be delivering the patient over to the discipline of some rapacious quack, or some ignorant pretender to medicine.

342. Upon this subject, we are not bound to disclose our views of the case to the friends of the patient—we should prescribe agreeably to our own impressions; for candour does not exact an avowal that we differ from them. The welfare of the patient, I must repeat, will very often depend upon the address with which we manage this tender and interesting subject. My patience, oftentimes tried, suggests the cautions just urged; and my experience has but too often proved the necessity of them.

343. The lapse of a certain number of years is not all that is required, that the menses make their appearance; the uterus, and ovaria, must be developed, and in good health, if I may so term it, before they will appear; and this condition of the genitals is always indicated by corresponding changes in certain other portions of the system—there must, and will be evidences of womanhood, before this event shall happen; and when these are absent, the girl should never be tortured by the class of medicines called emmenagogues.

344. There seem to be four conditions of the female sys-

tem, in which the menses are tardy in their appearance: *a*, Where there is little or no development of the genital organs; *b*, or where it is taking place very slowly; *c*, where this development is interrupted by a chronic affection of some other part; *d*, where the most perfect development has taken place, but they do not make their appearance. The management of each of these conditions, is different—I shall therefore treat of them in order.

345. Condition *a*. This condition of the system is easily detected by the absence of all the signs which should characterize puberty—the breasts are not swelled, but remain dormant as it were; nor is hair always on the pubes. In a girl thus circumstanced, who otherwise is in good health, it would be more than idle, it would be cruel and dishonest, merely because she had attained her fourteenth or fifteenth year, to subject her to medical rule, or goad her system by stimulating emmenagogues. In such a case, if the mother or friends are rational, and to be trusted, we may honestly give our opinion of the entire insufficiency of medicine to produce the desired end. We should explain, so far as we can, the nature of the function of menstruation, and of the pre-requisites to this discharge; and attempt to produce on their minds the important conviction, that time, under proper circumstances, is all that is required, to effect the anxiously hoped for change.

346. I have encountered many such cases—with some I have succeeded, to bring them to my opinion; in others I have not been so fortunate as to convince them of the justness of my views—the latter may be divided into two classes—the one, though not convinced, dare not openly bid defiance to our opinion; because, they fear the responsibility, and thus will yield a reluctant acquiescence. The second, confident in their own judgment, will sometimes act upon it, to the imminent risk, if not to the destruction of the poor girl, who may be the object of their solicitude.

347. With the latter, when importunate, we should use a temporizing plan; and, by the administration of some entirely inert medicine, gain time, and save the patient from permanent ill health, or an untimely grave. I but too often call to mind

with bitter recollection, the fate of a most amiable, and interesting young creature, for whom I was requested to prescribe for the expected menses, but who had not one mark which would justify an interference; and was beside in perfectly good health—she was fifteen, it was true; and this was all that could be urged by the mother in favour of an attempt to “bring down her courses.” I relied too much upon the good sense of her anxious parent; and freely explained myself to her—she left me apparently satisfied: I heard nothing of the poor child for six months, when I was suddenly summoned to attend her, as she was said to be alarmingly ill.

348. When I saw her, she was throwing up blood in considerable quantities from the lungs; she died in a few days more, from the excess of this discharge. The distracted mother told me, that, though she appeared satisfied with what I had said when she left me, she was convinced I was wrong, and that her daughter’s health required the immediate establishment of the menstrual evacuation. With this in view, she determined upon the trial of a medicine of much celebrity, in similar cases, vended by a quack. She procured it; gave it according to directions; in a few days her daughter became feverish, lost her appetite, and frequently puked—her strength rapidly failed, and after a short time, she was confined to her bed—the mother called upon the “Doctor,” and informed him of the condition of her daughter; he encouraged her to persevere: and told her, that the fever, &c. was an effort nature was making for the end proposed—she persevered, fatally persevered; for, in a few days more, she lost her only, and lovely daughter. I examined the medicine which had been exhibited; it proved to be the oil of savin.

349. Condition *b*. This condition is known by the partial alteration the mammæ have undergone; by some expansion of body; and the protrusion of hair on the pubes. The general health sometimes suffers slightly; especially, if the girl has passed the fifteenth year, and grows tall rapidly—she is assailed by a train of nervous symptoms, as they are called; such as palpitation of the heart, ringing in the ears, headach, a tem-

porary loss of strength upon any sudden exertion; a diminished, or a whimsical appetite.

350. This condition is not unfrequently accompanied by fluor albus; and when it is, it more particularly deserves notice. I consider this case as meriting attention, when there is weakened health; but I as certainly set my face against any interference, when there is not.

351. Our exertions in favour of such patients, should tend to the invigoration of the system in general, and the development of the uterine system in particular. The first should be attempted, 1st. by the establishment of a regular course of exercise:—such as riding on horseback, where practicable; walking in proper weather; skipping the rope within doors, when the weather will not permit exercise abroad; dancing moderately, and with strict attention not to become overheated, and cooling too suddenly; 2d. by proper attention to dress; wearing flannel next to the skin in cold weather, and properly protecting the feet and legs against cold; carefully avoiding damp and wet places, and partial streams of cold air, especially when warm: 3d. by a diet of easily digested substances, both of the animal and vegetable kind; avoiding all stimulating drinks, such as wine, spirits, or beer, &c. under the specious pretext of strengthening.

352. The second must be accomplished by such medicines as appear to have a direct, or indirect action upon the uterus itself; of the direct, the tincture of cantharides appears to be the most efficient, and should be preferred to all others when leucorrhœa attend—thirty drops should be given three times a day, until this discharge cease. We may gradually increase the dose, should the complaint be obstinate; for it is of primary importance that it be removed; and we need scarcely look for the catamenia, while this remains in any force—for leucorrhœa is a kind of local depletion; and will prevent that partial congestion so favourable to development, and the production of the catamenial discharge. The parts should be regularly bathed every day with warm water; especially, during the continuance of the fluor albus.

353. Of the indirect kind, aloes seems to be the most certain

—the influence of this drug upon the uterus, has been very long acknowledged, and was much extolled for this purpose by Morgagni and his contemporaries—it should be given in very small doses, and perseveringly continued; this medicine is perhaps preferable to the tinct. canth. where leucorrhœa does not attend; the following is the formula I generally employ:

R. Gum. aloë. suc. ʒss.
 Pulv. Rhæi. opt. ʒj.
 Ol. Caryoph. gut. iv.
 Sapo Venet. gr. viij.
 Syr. Rhæi. q. s.—M. f. pil. lx.

354. One of these to be given every night, night and morning, or every other night, as they may affect the bowels—the object is to keep the bowels free, but not purged. This prescription is a remarkable instance of the power of combination; for the very small dose just recommended, will sometimes act with great force upon the bowels—so much so, sometimes, as to oblige us to reduce the above quantity one half. The same regard must be paid to air, exercise, and diet, (351) as just recommended.

355. Condition c. This condition is readily detected, by the presence of any such disease, as may be capable of interrupting this discharge, after it has been thoroughly well established; such as phthisis pulmonalis; chronic inflammation of the liver, or spleen; dropsy; &c. Under the existence of either of these diseases, the menses will almost always be suspended; because, it will certainly interrupt the development of the organs, essential to the formation of this discharge, however favourably this expansion may have commenced.

356. This case will most completely expose the physician to the importunities of the friends of the patient, for something “to bring down the menses;” it is in this case, of all others, they are persuaded that nothing more is wanted to re-establish health—it is here we must conceal our real sentiments, (342) as above recommended—however convinced of the inefficacy of the trial, we must not say so, for the reason urged just now; we can easily say, we have taken the circumstance into consideration, and that we shall prescribe accordingly. By this

means we can retain the confidence reposed in us, and not expose the patient to the risk of injury, by her being taken out of our hands, and placed into those, whose ignorance, or extremely limited views of the disease, might speedily prove fatal to her. To be useful in this case, is to remove the disease which interrupts the regular appearance of the menstruous discharge; if we cannot do this, we cannot effect the other. Of the diseases which may give rise to this interruption, it is not our province to speak.

357. Condition *d*. This condition is easily known, by the girl having all the outward signs of womanhood; the menses is all that is wanting to complete her title to it, and fit her for the duties she is destined to fill. This case is sometimes attended by fluor albus; when it is, it must be treated as I recommended above; (350, 351, 352) at other times, there is a manifestation of an attempt to produce the discharge, by the institution of pain in the back, hips, and loins, with a sensation of fulness in the pelvis, attended sometimes with a forcing or bearing down. This is periodical sometimes; and may be accompanied even by a serous discharge from the vagina, resembling whites. The tinct. canthar. as recommended above, will rarely fail to produce the discharge, if given steadily for two or three weeks; or the madder may be given, if the period for the return of the pains just spoken of, be near at hand.

358. I have found that a strong decoction of this wood is of equal efficacy with the substance, and is much more easily taken—I direct a pint of boiling water to be poured upon an ounce of finely powdered madder, and a scruple of bruised cloves; these to be gently simmered for fifteen minutes; when cool, strain off, and give a wine glassful every three hours—I have lately had a case of this kind, where the madder succeeded most promptly. This case rarely gives much trouble, unless the interruption has been occasioned by imprudent exposure to wet or cold—in this instance, it must be treated as an obstruction.

SECT. II.—2. *Of the Suppression of the Menses.*

359. However well established the menstrual discharge may be, it is liable to interruption, from a variety of causes independently of pregnancy, and suckling. The little regard which young females pay to this period, exposes them but too frequently to a derangement of it; nay, some I have known, so heedless of consequences, as to designedly interrupt them, by putting their feet in cold water, when engaged for a party of pleasure. Cold in some form or other may be considered as the most frequent remote cause of this suppression; and it may be applied either in the interval; just as they are making their appearance; or after they have flowed some time.

360. When cold is applied with sufficient force in the interval to arrest this discharge, the first notice the woman has of its influence is, the want of return of the menses, at the subsequent period; she for the most part neither suffers pain, or other inconvenience, until the menses may have failed in their return for several periods; she then may experience the approach of ill health; and is now an object of medical care. She may now become pale, emaciate, and be much enfeebled—a train of nervous symptoms may be superadded, such as palpitation of the heart, difficulty of breathing, a sense of suffocation, especially, after any thing has hurried the circulation—she may also be attacked by fluor albus, which soon aggravates the previous unpleasant symptoms.

361. When cold is applied as the menses are about to appear, or after they have flowed some time, the symptoms are generally very different: in such cases, the patient is frequently attacked with violent pain in the head, back, or bowels, and this with such force, as to give great alarm for her safety. I have known temporary derangement, violent hysteria, and severe colics, result from this cause. For the relief of these, we are obliged to have recourse to blood-letting, purging, warm bath, camphor, opium, assafœtida, &c.; and, for the time being, are necessitated to treat the complaints as if they were independent of such a cause; for we very rarely can re-establish

the discharge, at the moment when it has been thus interrupted; nor should it always be attempted, as sometimes much injury is done, by neglecting the consequences of this interruption, and directing the whole force of our endeavours to the recall of the discharge. I admit, that after bleeding and purging have been performed, advantage is sometimes derived from either the general or partial warm bath, or hot fomentations to the abdomen; especially, if pain be experienced in the region of the uterus. Should pain be severe, I have found nothing to answer so well as an injection composed of a gill of thin starch, a tea spoonful of laudanum, and thirty grains of finely powdered camphor. If it be complicated with hysteria, the addition of three tea spoonsfull of the tincture of assafœtida, instead of camphor may be useful; this may be repeated *pro re nata*. When colic supervenes upon the interruption of the menses, after bleeding (should the pulse have indicated it,) I have found nothing so certainly to relieve, as half-ounce doses of the *elix. proprietat.* in warm sweetened milk, until the bowels be opened.

362. Having pointed out, in a cursory manner, the plan of treatment for the consequences of a sudden interruption of the menses, I shall now proceed to the consideration of such plans as will invite their return. In doing this, I must be considered as only speaking of the idiopathic suppressions, and the modes of treatment proper in them. I must here premise, that I do not look upon every deviation in regularity, as a legitimate cause for medical interference; for in many instances with young girls, and especially, those who began precociously to menstruate, there will be a want of precision in return, that must not be mistaken for disease. Did we subject the poor girl to medical treatment upon every aberration of this kind, we should be condemning her to most improper discipline. So also, it many times happens with hale robust young women, that a temporary suspension takes place from cold, or passions or emotions of the mind,* which after a certain duration, re-

* A lady informed me, that while menstruating, she fell down stairs; and from that moment, the discharge was suspended; nor did it re-appear, until the next period.

turn without medical application, or even the slightest premonition. My rule is, never to interfere, unless there be some evidence that the health is suffering by the absence of this discharge.

363. The general health rarely suffers, until three successive periods have passed over, unless this obstruction be accompanied by fluor albus. When this attends, the health may be earlier affected; and when this happens, it should be immediately attended to. The remedies will vary, according to *the state of the system*; and I cannot too earnestly recommend attention to it; as success in the treatment of these complaints almost exclusively depends upon this discrimination. Perhaps there is not in the whole range of medical practice, such a departure from principles, as in the treatment of certain female complaints—they seem to be prescribed for with determined empiricism, as if the laws which govern diseases in general, were not applicable to them. The want of success in many of the complaints of females, is owing almost altogether to the determination to discover specifics for them; for the existing condition of the system is too seldom taken into the calculation, when the prescription is made; hence, the almost uniform failure of certain remedies in the hands of some practitioners, which are as uniformly successful, in the hands of others. A practitioner acquires by long habit and correct observation, a control over certain diseases, that will not yield even to the same remedies, when indiscriminately used by others—this tact in the use of certain medicines, is but the result of accurate observations on the various conditions of the circulating system; and when this study is neglected, it is a moot point whether the remedy succeed or not.

364. In prescribing then for the disease, or rather, derangement under consideration, it were almost hopeless to employ remedies without the most strict attention to the existing state of the system; the remedy which shall relieve in one case may not only be used unavailingly, but perhaps injuriously, in another; it therefore behooves every one to become familiar with the various states of pulse, before he prescribe his remedies, if he expect to succeed by their employment.

365. The word *debility* has occasioned the death of thousands; and perhaps to the end of time, it will have its victims—every interruption of a natural action, which may involve the system at large, with nine-tenths of the writers upon diseases, originates in *debility*; hence, the whole class of diseases we are considering, is supposed to either originate in, or be perpetuated by, *weakness*: thus fluor albus, and the deranged conditions of the menses, are considered as diseases of *weakness*; than which, for the most part, nothing can be farther from the truth. The most opposite remedies will in their turn remove the same diseases; and the person who cannot understand the reason of this simple fact, will never be able successfully to combat them.

366. Having stated some general notions on the management of the complaints under consideration, I shall now proceed to detail the practice essential in each particular state of the system. When the suppression is of recent date, that is, not more than of three or four months' standing, it is almost always found, that the pulse, so far from betraying marks of *debility*, manifests a tendency to an excess of action; when this is the case, we should commence the treatment with such remedies and regimen, as will reduce the pulse to a proper standard, before we proceed to the exhibition of such medicines as shall have a direct tendency to produce the menstruous discharge—this is to be done, by blood-letting, by purging, and by a strict vegetable diet—this plan is so effective in some cases, as to require nothing more, for the re-establishment of health; and in others so indispensable, that success can only result from its employment as a preparative step. I will illustrate both of these cases by appropriate cases.

Case First.

367. Miss —, after having stood a long time on a damp brick-paved cellar on a hot day, and at the warm employment of “preserving,” found herself chilly, and her menses arrested: her feet were ordered to be put into warm water, and some hot pennyroyal tea was given her; this removed the chilliness, but did not restore the discharge; she was occasionally taking

remedies without effect, until some time after the third month; at this time she became more indisposed, and I was requested to visit her—I found her labouring under severe headach, which was much increased by sitting up, or motion; her pulse full, and a little quickened; her tongue slightly furred; her appetite impaired, and her bowels costive. I directed her to lose twelve ounces of blood; to be freely purged by senna; and to confine herself to rennet-whey, barley water, or thin tapioca for nourishment.

368. Her symptoms were much less severe next day, but not entirely removed—I ordered another dose of senna tea to be taken, and the same diet to be observed: on my next visit she appeared perfectly relieved, but I insisted on her using a spare diet for some time longer, and to take an aloetic pill every night; this plan was pursued for several days, at the end of which time her menses made their appearance.

Case Second.

369. Miss —, after a stoppage of her menses for four months, desired my advice; her health of late began to suffer considerably—she was pale and emaciated; had some fluor albus; headach; loss of appetite; and was readily agitated by slight causes; much palpitation of the heart; especially, on going up stairs. Her pulse was tense and hurried; skin hot; and tongue furred considerably; especially, in the morning. I ordered her to lose ten ounces of blood; to be purged by senna, and to be confined to a vegetable diet—she was relieved by these remedies; but as the force of her pulse was not entirely subdued, I thought it best to keep the bowels loose, and confine her still to a vegetable diet. This plan, strictly persisted in for about ten days, reduced her pulse sufficiently to bear the tincture of cantharides, in doses, of five-and-thirty drops three times a day; in a few days the fluor albus stopped; and in a few more, the menses made their appearance. Upon these two cases, I shall merely remark, that had I given any emmenagogue medicine in the commencement, I should not have had

the pleasure of seeing my patients so quickly restored—or, in other words; had these cases been treated as cases of *debility*, I am certain the complaints would have been aggravated; yet, in the last, there were strong marks of *debility*, agreeably to the common notions upon this subject.

370. The madder may be given more safely than any other remedy with which I am acquainted, without such particular attention to the pulse, as it excites no increased action in it. I am in the habit of using this drug without previous preparation, should I be applied to, near the period at which the menses ought to appear; and succeed sometimes most promptly with it—indeed this is the only time at which it seems useful; for if it fail then, it is rarely more fortunate afterwards.

371. When the madder fails, I commence, in recent cases, with the cantharides, after having duly prepared the system for its reception. I rarely increase the dose more than ten or fifteen drops beyond the original dose; as the moderate doses of thirty-five or forty, have always been found sufficient with me, when the medicine would succeed at all. Should the cantharides fail, I then order the volatile tincture of guaiacum; which, when exhibited in proper cases, has never yet failed in my hands—I give it with a confidence I attach to no other medicine for this purpose. This confidence is the result of very many years' experience of its efficacy. I have often succeeded with it, where almost all the other emmenagogues have failed; nay, I have done more; I have found it to answer completely, after it was said to have had a fair trial—but this fair trial was very far from being so. As it is much more stimulating than the madder, or cantharides, I am always more attentive to have the system properly prepared for its reception. Therefore, the pulse should be more reduced, than for the medicines just named: this is easily effected, by the loss of a little more blood than in the other cases; purging more freely; and insisting on a low diet, for a few days.

372. When speaking of the tact that is acquired in the administration of certain medicines in certain diseases, I had particular reference to the employment of the tincture of guai-

acum as an emmenagogue. I have, for nearly five-and-thirty years, almost daily used this medicine, in suppressed catamenia; and more especially, in those of long standing, without its having failed in any case proper for its use*—more cannot be said of any remedy whatever.

373. I say this in the most perfect good faith, as I have learned that some of my brother practitioners have not been equally successful with it—but I think I can readily account for their failure: 1st. From their not placing the system in a proper situation for its use; and, 2d, by not properly persevering in it. Neglecting these important points, it can readily be imagined, that it may not succeed; for I deem an attention to them essential to its success, more especially in those cases, where many months of interruption have existed. I think one of its superiorities consists in its certainty in cases of very long standing; and I could readily furnish from my note book, a number of instances, where it succeeded to restore the menses after an interruption of from nine months, to nearly three years.

374. The mode of using it is, a tea spoonful every morning, noon, and evening, in a wine-glassful of sweetened milk, or, where not forbidden by some peculiarity or circumstance, as much white wine, as sherry, Teneriffe, or Madeira. The dose must be gradually increased in those cases, where a perseverance beyond four or five weeks becomes necessary. Should this medicine disturb the bowels too much; a few drops of laudanum must be added to each dose; but if on the contrary they should not be sufficiently opened, the addition of a little of the resin of jalap, or of powdered rhubarb, will be an improvement.

375. As the tincture I employ, is different from the tincture of the shops, I think it right to subjoin my formula.

* By a proper case, I mean, where the suppression is an idiopathic disease, and not one, where the uterus has its functions interrupted by disease, or pregnancy—for, in the latter, I have in two or three instances been imposed upon, notwithstanding all my caution; and where I dared not suppose this condition to exist. But by these few cases, I learned, so far as they could go, that it would not produce abortion.

R. Pulv. G. Guaiac. opt. ℥iv.
 Carbon. sod. vel potas. ℥iss.
 Pulv. Piment. - ℥i.
 Alcohol. dilut. - - ℔i.

digit.—for a few days.

The volatile spirit of sal ammoniac, to be added *pro re nata*, in the proportion of a drachm, or two, to every four ounces of tincture; or less, or more, agreeably to the state of the system.*

376. Analogous to suppression may be considered the very sparing quantity of the menstrual discharge—this may happen, 1st, to young women in the prime of life; and, 2d, to women pretty far advanced towards the period at which the menses are about to cease. With the first, when the usual quantity fails to be discharged, it always excites alarm, and recourse is almost instantly had to the nostrums of old women, or regular application is made to the physician—I have seen many of those cases; and they may be classed under two heads:—1st. Where this takes place from some accidental irregularity in the secreting powers of the uterus; and 2d. Where there is too early a tendency to cessation. The first may be again divided into two states: 1st. When, after it has continued some time, the health seems to be impaired pretty much after the same manner, as if a decided suppression were present; for it has very much the same accompanying symptoms; and, when this happens, this complaint, for the most part, seems to be relieved by the same remedies, as for obstruction; especially, by the tincture of cantharides. In the second state, it seems to be an habitual condition of the uterus, in a number of instances which have fallen under my notice; and, though the quantity discharged is sometimes extremely small, yet all the natural, or prolific powers of the genital system seem to be preserved; for I have in several cases known pregnancy to fol-

* It has recently been proposed to relieve amenorrhœa, by the injection of liquid ammonia into the vagina. Dr. Hosack (New-York Med. & Phys. Journ.) declares, he treated a case successfully, of ten years' standing, by means of this remedy, after many others had been unavailingly employed. He directed a drachm of the ammonia, and a pint of rain water, to be thrown up the vagina, three times a day. The cure was effected in five weeks.

low. I have prescribed for these cases all the known usual remedies, without effecting any change in the quantity discharged; yet after marriage, these women became mothers. I have, therefore, of late years, not interfered in cases, where there was no evidence of ill health accompanying them. But it must be confessed, though no ill health may have attended, they are not fruitful; but in these cases, so far as I have yet seen, it has been an anticipation of final cessation—I have met with three instances, where this evacuation has ceased altogether, before the twenty-fifth year; and two before the thirtieth year—the health of these women appeared to be as perfect, as if they had this discharge, in the most regular manner.

377. When this scanty menstruation takes place in women in the decline of life, so far as I have observed, it is not so regular in its periods as in young women; yet, as it never has, so far as I know, been productive of any unpleasant consequence, therefore, I have never thought it proper to interfere; especially, in women, after their five-and-thirtieth year. This condition of the menses, is more apt to take place in unmarried women, and in widows, than in married women.

378. In some instances of young married women, I have had strong reason to believe, it was owing to some deranged condition of the ovaria; for they were not only barren, but had never discovered any desire for sexual intercourse; or at least, were perfectly indifferent to it.

379. It would seem to follow from these observations, that the cases of deficient menstruation in which the health appears to suffer in a greater or less degree, are those of the most easy management; but in the treatment of them, the same regard must be paid to the condition of the vascular system, as if an absolute obstruction existed—I shall relate a case, by way of illustrating the material points in question. Mrs. —, aged twenty, during a period of her catamenial flow, suddenly heard of the death of her absent husband—the menses were immediately suspended, and continued so, for five months; during this time she suffered much from a train of most untoward nervous symptoms; at the end of five months there was a slight show, which was repeated at the end of another

month, and so on, for two or three periods more—but her health did not improve by this slight discharge, as was fondly hoped; and I was now consulted. I found her, as stated above with a variety of nervous symptoms, which were easily exacerbated by the slightest mental distress; together, with considerable leucorrhœa—much headach, and hot skin towards evening, and costive bowels—she lost ten ounces of blood; was purged by aloes and rhubarb; kept upon a milk and vegetable diet, and took the tincture of cantharides; the next month she had an ample discharge.

SECT. III.—3. *Of the immoderate Flow of the Menses.*

380. This complaint is vastly more rare, than we should be led to imagine, did we regard popular opinion; or even the writers of practical systems of either medicine, or midwifery. I have seen, comparatively, very few cases of superabundant *menses*—for in the consideration of this subject, I shall confine myself to what should strictly be called an inordinate menstrual secretion. This complaint has been constantly confounded with uterine hæmorrhage; because, it always commenced with a genuine menstrual evacuation, which continued two or three days, and was then followed by a discharge of pure common blood; all of which, by careless observers, has been classed under an “immoderate flow of the menses.” Should this confusion be admitted into descriptions of this complaint, we need not be much surprised at the avowed frequency of it.

381. There must necessarily be an almost endless variety in uterine constitution, if I may so term it; consequently, there will be a corresponding variety in the performance of its duties—hence, one woman will lose twice or three times as much of the menstruous fluid as another, without suffering from this appearance of excess. As respects this discharge, excess must be regarded as a relative term; and we should only be directed to consider it so, by comparing, or rather observing the effects it has upon the general health of the individual so circumstanced; should it not appear to produce debility, we have

no right to call this discharge immoderate, or excessive—for it is only so, as compared with those who may evacuate less, and yet be in no better health. It must therefore be repeated, that this discharge, in an excessive degree, is of very rare occurrence; and that so long as it does not impair the constitution, it should not be meddled with; especially, if it be not inimical to impregnation.

382. I am well acquainted with a lady, now forty years of age, who has more than once assured me, that from her earliest recollection after this discharge commenced, (which was at her twelfth year) she never enjoyed a longer exemption from it than ten days, unless she were pregnant, or suckling; yet, during the whole of that time, she had never suffered the slightest indisposition that could be attributed to this apparent excess; she was, therefore, two-thirds of her time, with the exceptions just mentioned, giving issue to this discharge—she also declared her belief, that from what she could learn from others, she evacuated daily, as much as women in general—consequently she must have parted with at least three times as much as is usually lost during a common period.

383. Should this complaint prove excessive, in my acceptance of the term, (381) it should be treated, *perhaps*, as an hæmorrhage, properly so called—I say perhaps; because, I have met with but one case, where, from the quantity of the discharge, debility, and other evils were induced; and this was treated after this manner.

Miss —, aged seventeen, was seized with a severe tertian, which, before it could be arrested, required much depletion, and left her for some time in a state of great weakness. After she was considered to be recovered, her menstrual discharges became very abundant, and recurred as they were always wont to do, every three weeks. The quantity discharged was very great, as far as could be determined by the pulse, and the appearances upon the cloths. She became very feeble, much emaciated, and confined to her bed, before I visited her; and this was while the menstrual period was upon her. Her pulse was frequent and weak; her feet and hands cold; she was ex-

tremely pale, and distressed by palpitation of the heart; ringing in the ears, and great sickness of stomach.

384. Bottles of warm water were ordered to her feet; thirty drops of laudanum, with as much of Hoffman's anodyne liquor; and two grains of the sugar of lead, with a third of a grain of opium, every hour, until the discharge should be moderated. The character of the discharge I was particular to ascertain; and, from the most cautious examination upon this point, I had no hesitation to believe, (contrary to my first impression,) that it was a genuine menstrual flux, but of unusual severity. By the plan just mentioned, the discharge appeared to be much moderated in the course of a few hours; but early the next morning, I was sent for in great haste, as the flow had increased very much. I now ordered twenty grains of the sugar of lead; a tea spoonful of laudanum; and a gill of lukewarm water, as an injection—this quickly arrested the discharge; and she had no return of it from that time, if we except a very moderate stillicidium of three or four days continuance. In the interval, a nourishing diet was directed—quiet, and a mattress to sleep upon; also twenty drops of the elixir of vitriol, in strong, sweetened rose-leaf tea, four times a day, and the bowels kept open by small, but repeated doses of the sulphate of magnesia. On the arrival of the next period she was again attacked with a flow as abundant as on the former occasion; the same remedies were again successfully employed. During the succeeding interval, two grains of the sacch. sat. every morning, noon, and evening, were ordered in lieu of the vitriol; she was directed to drink freely of cold camomile, and orange-peel tea; a plaster of Burgundy pitch to be applied to the back; and the legs and feet to be kept very warmly clothed.

385. At the subsequent period, the discharge was considerably more moderate, but still too abundant; the sugar of lead pills, were now given every two hours, until the flow should cease. The interval was conducted as before; and, after this time, there was no further necessity of medicine. Exercise, and sea bathing, very soon confirmed her health; nor did she afterwards suffer any return.

386. The plan, as just detailed, proved successful in the instance just mentioned; but whether it would be so in other cases, my limited experience in "excessive menstruation," will not permit me to declare—though I am disposed to think it might; and under similar circumstances I should certainly adopt it.

387. Menorrhagia, or hæmorrhage properly so called, succeeding, or happening at the menstrual period, is much more common; and has been, as just noticed, but too often confounded with it. This complaint is readily distinguished from the one now treated of, as it is always accompanied by discharges of coagula; and is almost always attended with pain in the region of the uterus. This sometimes goes to a great length; and is occasionally very menacing. It is more common with married women and widows, than with young girls. Its treatment is precisely the same as that of uterine hæmorrhage; and which will be minutely detailed, when that subject is treated of. Mr. Burns, when speaking of hæmorrhage of the uterus, makes mention of the sugar of lead as a remedy; but declares it to be a dangerous one. Upon what ground this is said, I am at a loss to determine. I have used this substance most freely for more than twenty years, without observing the slightest inconvenience from it.

SECT. IV.—4. *Dysmenorrhæa, or Painful Menstruation.*

388. This complaint is very common in our climate; and is one not only of great suffering, but also very frequently of great obstinacy. The woman is obnoxious to this complaint, during every part of the menstruating period. It would perhaps be very difficult to assign all its remote causes: the most common are, the application of cold during the flow of the menses; taking cold after abortion; and in several instances, I have known it to follow the consummation of marriage. This latter cause is perhaps the most difficult of explanation—for it would seem, it should have no such agency, reasoning *à priori*. In a number of instances, the causes appeared to be

so hidden, as not to be cognizable. The married, and the single, woman, is alike subject to it.

389. The sufferings at the menstrual period are sometimes beyond description severe: they resemble, in point of intensity, the pains of labour, or an abortion properly so called; for to either, it may be said to have a strong analogy. It usually commences by a slight menstruous discharge, which is pretty suddenly arrested; and then pain almost instantly commences; which is described by women as a forcing, bearing down pain, returning at longer or shorter intervals, until a membranous substance, or small coagula, are discharged. If it be a membrane-like substance, it will be found of unequal size; sometimes small, at other times large, and resembling the cavity of the uterus in shape; at other times, it will be broken into many fragments. After the expulsion of this substance, the woman enjoys ease, unless there be a fresh production of it; and it require fresh contractile exertions of the uterus for its expulsion.

390. The quantity discharged is very various; I have seen a portion not much larger than my nail; and again, I have witnessed as much as would fill a small tumbler. The period employed for the expulsion of this substance, is various; sometimes, requiring but a few hours; at other times, several days. The degree of suffering is not always in proportion to the quantity of substance expelled; indeed, the pain would rather appear to be less when much is discharged; which perhaps is not of difficult explanation.

391. There appear to be two distinct states of this affection: one, where the mammæ sympathize with the uterus, by becoming tumid, and oftentimes extremely painful; the other is, where there is no such affection. These two conditions are not equally manageable; the one accompanied with painful breasts, so far as my observations have yet gone, is the most so of the two.

392. Besides the alternate or labour-like pains, I have just mentioned, there is almost always a permanent one in the back, hips, and loins, which continues until the alternate cease: in-

deed, this aching pain sometimes precedes the others, and announces the discharge to be at hand.

393. I have in another place declared, that the menstruous fluid is the product of a secretory process; (102) and there given my reasons for this opinion; I shall, therefore, assume it here as a principle, and upon that principle attempt to account for the formation of the membranous production so often yielded in dysmenorrhæa. But before I attempt an explanation of the formation of this membrane, I must direct attention to a very remarkable circumstance in the character of the menstrual blood;—namely, its not possessing the property of coagulation—from this, it appears that the blood, or a part of it, has suffered some change by the action of the uterine vessels; and that this change, has been imposed upon the coagulating lymph by the process of secretion; I have assigned reasons for this change, when speaking of menstruation. (103) Now, it is not difficult to suppose that the uterus, like every other organ, may have its functions impaired; and that, instead of the texture of the coagulating lymph being subdued as it is wont to be, when the uterine secretory action is perfect, it remains nearly the same, as when it entered this viscus; except, that it may be attenuated, as in some inflammatory diseases; it will, from this imperfect elaboration, be thrown into the cavity of the uterus, without being dispossessed of the power of separation, and of coagulation.

394. It is poured into the uterus, in a most gradual manner; and, from this circumstance, may tarry there, sufficiently long to separate into its constituent parts; the coloured part, or red globules, from their greater weight, will leave the imperfectly subdued coagulating lymph, and fall to the bottom of the uterus, and sooner or later be discharged; while the coagulating lymph, either in part or altogether, will be left to spread itself over the internal face of the uterus, and there quickly assume, as is usual with it when in contact with living parts, the appearance of a membrane. This membrane will be, to all intents and purposes, an extraneous substance to the uterus; and will sooner or later urge it to repeated contractions to throw

it off; which contractions will be painful, like those of labour—hence, the pain in this kind of menstruation.

395. The treatment of this complaint consists of the temporary, and the radical; the first consists in the administration of remedies to relieve pain at the commencement of, and during the attack; and the most efficient, and uniformly certain that I have yet discovered, is camphor in sufficient doses; the following is the formula I generally use:

R. Gum. Camph. ℥i.
 Sp. vin. rect. q. s. f. pulv.—Add
 Pulv. G. arab. ℥i.
 Sacch. alb. q. s.
 Aq. Cinnam. simp. ℥i.
 M.

One half of this draught is to be given the instant pain is experienced; and if it be not relieved in an hour or two, the other half is to be given—this quantity, however, is not always sufficient to subdue pain; in this case let the mixture be repeated—or the same quantity of camphor may be finely powdered and given in ten-grain doses every hour, entangled in a little syrup of any kind, until relief is procured. Sometimes the stomach is much deranged in this complaint, and will bear nothing—when this happens, thirty or forty grains of camphor are to be rubbed down with a few drops of the spirit of wine, to a very fine powder; one drachm of laudanum; and three ounces of thin starch or flaxseed tea; and given as an injection. Should this be too suddenly discharged, it may be repeated.

396. Opium in various shapes has also been administered; either alone, or in combination with camphor, or ipecacuanha. The ergot has also been recommended; but it has hitherto failed in my hands—warm bath, pediluvium, and bleeding, have also been prescribed; but nothing has succeeded with me so well as camphor.

397. The radical treatment consists in the exhibition of remedies in the interval, with a view to prevent a recurrence of pain—the one which has proved most successful is the volatile tincture of guaiacum, given as already directed, (374) for suppressed menses. The same regard to the state of the sys-

tem as is there recommended, is also here insisted on. Perseverance for two or three months, is oftentimes necessary. I think I have observed that this medicine is most decidedly useful, where the first menstrual period after its use, is more than usually severe. This, has been pretty uniformly found a favourable sign.

398. Though the tincture of guaiacum has been generally successful, it has not been uniformly so—in two instances where it failed, the ext. cicutæ, succeeded; and in one other, where it had not been successful, the tincture of cantharides gave perfect relief.

399. I have never met with a case of fruitfulness, where there was a discharge of membrane in a married woman; though Morgagni relates a very remarkable one, in which it was otherwise—I have seen a few instances where there was painful menstruation without this membranous production, but where a few small coagula were discharged, and the women were fruitful—but such cases are rare.

400. Does this disease reside in the ovaria, or in the secreting surface of the uterus? I believe in the latter; and that its being unfavourable to impregnation, is not owing to any influence it may exert upon the ovaria, (for I have reason to believe that ova have been impregnated, but not finding the uterus in a condition to receive them, have perished,) but to either the non, or the imperfect formation of the decidua. I believe the same surface furnishes both the menstrual secretion and the efflorescence called the decidua; it would seem then to follow, if it performed the first of these offices imperfectly, it would also the latter; and consequently, the ovum would perish for want of a proper nidus.

401. This opinion is strengthened by the facts, that so soon as this wrong action is changed, the woman is instantly capable of being impregnated; or in other words, fecundation becomes successful; and also, by the influence of camphor, a temporary change is induced, in the discerning vessels of the uterus, and the formation of membrane is prevented. Were it necessary, I could illustrate both of these positions, by very many cases;

but I shall confine myself to one of the former, as it is the most remarkable I have met with.

402. In 1791, I was applied to by a lady, who had always suffered at her menstrual periods; and who at such times, always discharged a number of membranous portions; and who had been married nineteen years, without being impregnated. After due preparation, for she was very plethoric, I put her upon the use of the tincture of guaiacum; in this she persevered, for three months—the first period after she commenced the use of this medicine, was one of prodigious severity; so much so, as to make her resolve to abandon it. I however persuaded her to persevere; the next period was better, and the one after was without pain—she conceived immediately after, and was delivered in due time of a fine girl. She took twenty-four ounces of the tincture.

SECT. V.—5. *Of the Decline of the Menses.*

403. The nearer a woman approaches her forty-fifth year, *cæteris paribus*, will be the chance of some irregularity in the menses; and as this period is more frequently the one at which any latent disease of the uterus shows itself, it is always looked forward to with much anxiety by women. Indeed, so replete is this time with horrors to some, that we may very justly suspect apprehension to be the cause of some of the distressing symptoms, which sometimes accompany this interesting process of the human uterus.

404. The reason of this discharge leaving the woman at this time of life, appears to be founded in the highest wisdom and beneficence—it is to prevent child-bearing beyond that period, at which the mother would be capable of extending her care to her offspring, from the common chances of human life; and consequently, submitting her child to the doubtful management of strangers, or subjecting it to the waywardness, and caprice of those, who could not feel a parent's affection; or would not yield a mother's devotion to its necessities, at a time when its helplessness would most require kind offices.

405. This change is sometimes so silently effected, that the

woman scarcely notices her altered condition; at others, its approach is so gradual, as not to attract observation, until the diminished quantity gives warning that it is about to take its leave for ever; while again, the irregularity, both in period and quantity, may be such, as justly to give alarm, as well as to produce the most serious danger.

406. It would seem, that the apprehensions of this period of life, have arisen mainly from the notions entertained of the final cause of the menses; namely, that it gives vent to peccant humours. Whenever this discharge is less abundant than usual, the most serious fears are entertained, lest there be a retention of a portion, which will cause disease, either in the uterus itself, or in some other part of the body—hence, a diminished menstruous secretion is always more alarming to the female, than an unusual flow.

407. The vulgar error, that “women at this period of life are always in danger,” is replete with mischief to the suffering sex: and it is but a duty to declare, that they are not necessarily more obnoxious to disease at this, than at any other period of their existence. That they are sometimes liable to disease at this time; and that disease, one of the most terrible in the long list of human infirmities, must be admitted; but I must insist, that cancer (the disease to which I allude, and the one so much dreaded) is more rare in the uterus, than in certain other portions of the body; for instance, the *mammæ*; and perhaps I am within the truth, when I say, that there are three instances of the latter, for one of the former. If latent dispositions to disease, in the uterus and other parts, become active about this period of life, it is not because the declining menses excite them; but because the disease is slow in developing itself, and is perhaps kept in check for a long time, by the menstrual discharge serving as an important evacuation; especially, when the uterus may be the seat of the complaint. In such instance, the foundation of the disease was laid, perhaps, at a time when the menses were the most perfect, as regards period, and quantity; consequently, they could have had no agency in its production; but, on the contrary, from its frequently relieving the engorgement of the vessels, kept it in subjection for a long

time; not as a specific discharge, but as mere depletion; or in other words, that if an equal quantity of blood could have been by any other means as certainly abstracted from the uterus, the same favourable result would have followed. Coincidences in the human system are so common, that they are frequently mistaken for cause and effect; hence, the cessation of the menstrual discharge, and the appearance of schirri, and cancers, are considered as cause, and effect.

408. However, our present concern is with the derangement of the discharge at or about the period of cessation; this will consist, 1st. in a diminution of the usual quantity; and 2d. in an excess of it. As regards the first, I have already said enough when treating of the suppression of the menses; and, with respect to the second, it must be treated according to the rules prescribed for the management of hæmorrhage from the uterus from any other cause; that is, first, to diminish the quantity discharging; second, to prevent an excessive return.

409. The first indication is best fulfilled by rest; by cool air, and drinks; by cold local applications; by the acetate of lead, and laudanum; and by the use of the tampon.* We should immediately confine a patient so circumstanced to a horizontal position; and strictly forbid motion of every kind, even turning in bed. We should admit with freedom cool air where practicable; and give neither nourishment, nor drinks, except they be cooled—the latter may even be iced. Cold applications to the abdomen are frequently useful in excessive discharges of this kind; the best mode of applying them, is by large bladders not quite filled with water, in which there is ice, if it be in summer, or during hot weather; cold water alone will be sufficient, if in winter; during the use of this, care should be taken that the feet, and legs are kept warm. We should also give two or three grains of the acetate of lead, guarded with a sufficient quantity of opium, or laudanum, by the mouth, every hour or two; or a scruple of it with a drachm of laudanum, and two or three ounces of water, as an injection—this to be repeated *pro re nata*. And should these not control the discharge upon fair trial, recourse must be had to

* See Chapter on Uterine Hæmorrhage.

the sponge tampon. I have repeatedly seen the discharge of blood, at this period of life, so enormous and so rapid, as to threaten almost instant exhaustion. When thus excessive, it can only be met by the most prompt application, of the most efficient remedies.

410. Whether this disease shows itself in the rapid expenditure of fluid blood, or in the repeated expulsion of large coagula, it must be opposed by the same remedies—these two conditions present no difference of indication, nor any essential difference in the complaint itself; the former, however, generally requires more prompt interference than the latter, as more blood is expended in a given time.

411. The second indication must be fulfilled by blood-letting; by purgatives; by hemlock; and by tonics. Notwithstanding the immense loss of blood, which sometimes takes place suddenly at each period of return of this hæmorrhage, it does not prevent the almost continual draining off of this fluid, even when its violence is much abated; hence, we sometimes find a greater or less discharge almost always present—this renders the woman not only feeble, but keeps her mind in a state of extreme apprehension, from one period to another. These two causes, namely, the excessive discharge, and mental anxiety, keep the system in a constant state of excitement; and if the pulse be examined it will be found quick, and corded. We are, therefore, under the frequent necessity of abstracting a few ounces of blood during the interval of each period; especially, towards that period, the disease has assumed for its movements—this, however, varies in different individuals; and in even the same individual, if any error has been committed, in either diet or exercise. But when all things are equal, we find the period pretty certainly marked; and it may be every three, or four weeks; or sometimes even longer. I have known two or three violent cases, where the discharge returned every two weeks.

412. To aid the vessels to contract, we should confine the patient to a strictly vegetable diet; or to a diet of milk, if this should agree with her—all kinds of liquor, and spices should be forbidden; and exercise absolutely prohibited. The patient

should sleep upon a mattress; and should be directed to repose herself upon it, or a sofa, as often as she may feel a little weakened, or fatigued by sitting up. The feet and legs should, however, be kept warm; and, if habitually cold, should be rubbed two or three times a week with spirit or brandy, in which a quantity of the flour of mustard is mixed.

413. The bowels should be kept freely open, by the regular exhibition of some mild purgative; such as rhubarb, sulphur, magnesia, or any of the neutral salts. Against the use of aloes there is much clamour; but I have some reason to believe, not with justice. I do not wish by any means to decide this point at this time; as my experience in its use is as yet rather limited. I have thought it proper to direct attention to it, that I may be aided by the experience of others, in determining the powers of this medicine—but I will relate what I know upon the subject, and leave it to the farther employment of this drug, to either confirm, or destroy my present favourable impressions.

414. A lady, aged forty-two years, for whom I had prescribed almost all the known remedies for the hæmorrhage under consideration, with very little benefit, was told by some old woman, that the *hiera picra* was a certain cure in her complaint; she mentioned this, and I very candidly stated my own, as well as the general prejudices against the principal ingredient in this compound; but, at the same time, observed, that as the old woman who had recommended it, cited the cases of two or three ladies who were known to her, it would be easy to make the inquiry; and, if it were as she stated, it would be well to give it a trial, as every thing else had failed—the medicine was warmly recommended by these ladies; and she proceeded to make use of the old woman's prescription: which was half an ounce of the *hiera picra* to a pint of gin; of this a wine glass-full was directed at bed-time—it was taken, and the lady was completely intoxicated all night, and very sick next morning. Thinking the effects would next night be less severe, she again ventured to take it, and with similar results.

415. She was now determined to abandon it, unless some

less objectionable mode could be adopted for its exhibition—I prescribed it for her in the manner following:

R. Hiera Picra, ʒij.
 Ol. Caryoph. gut. x.
 Sapo Venet. gr. xij.
 Syr. Rhæi. q. s.
 M. f. pil. xxxx.

One of these was directed every morning, noon, and evening, unless they should prove too purgative—this did not happen, as the patient was of an extremely costive habit. She soon perceived, after she began the use of this medicine, a diminution of the discharge; and by the time she had finished the pills prescribed above, it was so much reduced in quantity, as to give no farther uneasiness.

416. Two cases of a similar kind, but of less severity, were entirely relieved after the use of the same formula—here ends my experience:—from this it would appear, that in the only three cases in which it was prescribed, the patients got well; but the precise agency of the medicine, remains to be determined by future observation. I am, however, convinced, of the importance of gentle purging, in this oftentimes tedious complaint.

417. One of the most successful general remedies I have employed, is the extract of cicuta; beginning with a minimum dose, and increasing it gradually; but at the same time as rapidly, as the system will well bear. When the decided marks of its influence, such as vertigo, headach, or sickness of stomach, begin to show themselves, I do not increase the dose until they go off—when this happens, I again give an increased dose, and so on, until the complaint has so far yielded, as to render its farther exhibition unnecessary, or until I am convinced that it will not succeed in arresting it. I have thought this medicine most useful in those cases where the discharge was chiefly by coagula.

418. No class of medicine has done so much mischief in the complaint I am now treating of as tonics—and this from a wrong view of the disease in question; for it has too generally been treated, as one of debility; consequently, all the most

powerful tonics, have been put in requisition for its cure. Bark, steel, wine, and all the bitters, have again and again, been unavailingly tried; and oftentimes the patient abandoned to the ravages of this disease, because it could not be conquered by tonics—the opposite mode of treatment, with such views, would necessarily be considered as death to the patient.

419. I well recollect a case, where three pounds of bark had been taken in less than two months, with a proportionate quantity of the elixir vitriol, to the manifest increase of the disease, and of risk to the patient—she was afterwards entirely cured, by an extremely low diet, gentle purging with neutral salts, quiet, and repeated blood-lettings. I must therefore caution the young practitioner against the use of tonics in such cases, because they may be attended by absolute weakness in the muscular system. The state of the vascular system alone is to be attended to; and here a chorded pulse must not be mistaken for a weak one, because it happens to be a small one.

420. With respect to the preparations of iron, I have perfectly convinced *myself*, they can never be usefully employed during the active state of any hæmorrhagy—in my hands they have never failed to do mischief; I have not used them therefore for many years, in the cases of which I am now speaking. The use of wine, I am also certain, has done mischief—it is port wine alone, however, that has any reputation in such cases; and this has arisen from its possessing a slight astringent property—it must also be strictly forbidden. The bitters will fall under a slighter censure than the bark; because, they are generally much less powerful—the same objections, however, attach to them; but in a minor degree.

421. Tonics are only admissible, where there is nothing but debility to contend with; they may then be advantageously employed in properly regulated doses. The diet may then consist of more generous living; and when well ordered, and properly pursued, may be looked upon as the best possible tonic.

422. Hitherto I have been considering the severer forms of this complaint—I shall now say a few words upon the occasional irregularities of the menses, both as to period and quan-

tity. The periods of return may be anticipated, or protracted; and the quantity may be very small, or more or less excessive; or it may employ a great many days for its evacuation, without the aggregate quantity being very great. I have constantly advised against any interference at this period of life, for mere irregularity, or irregularity with a diminished discharge; and for this plain reason; that, no other inconvenience is experienced; and this is so trifling, as not to merit consideration. But if with this irregularity, the discharge be too abundant, I treat it as directed for hæmorrhage; and try to prevent the recurrence by bleeding, a little before the expected return; a low diet; and purging with the neutral salts; these rarely fail to give relief.

423. When a great many days are employed, in the discharge, or, as the women term it, being almost constantly unwell; and where the aggregate quantity may not greatly exceed the common monthly amount, I have frequently succeeded by the tincture of rhatany in two-drachm doses, three or four times a day—and frequently bathing the parts with cold water; abstaining from too much exercise; and refraining from stimulating diet, and drinks. The alum whey, has often been useful in similar cases, and deserves trial; the sugar of lead, in small doses with opium, given daily for some time, has many times answered every end.

424. In every form of the disease under consideration, it may be remarked, I have thought, that very decided advantage has constantly resulted from injections of the solution of the acetate* of lead thrown up the vagina several times a day; except, during so profuse a flow of blood, as would render the use of the tampon necessary.† It may also be proper to remark, that the sponge or tampon, should not be suffered to remain within the vagina, longer than ten or twelve hours at a time. When taken away, it should be carefully washed in soap

* The injections should be made of two drachms of the sugar of lead, to about a pint and a half of water.

† I lately succeeded in arresting a constant and long-continued flow, by injections of warm alum water. A half-ounce of alum to a pint of water, was used.

suds; and before it is again returned, it should be imbued thoroughly with vinegar, or, if it can be procured, with the pyroligneous acid; on this account there should always be two pieces of sponge.

CHAPTER X.

OF THE TERM OF UTERO-GESTATION.

425. IT is not decided exactly by physiologists, what is the precise period a woman, under the most favourable circumstances, carries her child in utero. It seems, however, from the best calculations that can be made, that nine calendar months, or forty weeks, approaches the truth so nearly, that we scarcely need desire more accuracy, could it be obtained. There are unquestionably many causes, which may provoke the uterus to contraction, a short time before it might take place spontaneously; and I am of opinion there may be some, which may procrastinate the period.

426. We have no certain mark, from which to date conception; and consequently, cannot ascertain with precision, the period the fœtus resides in utero. The cessation of the menses is the most common evidence; but this must necessarily be liable to considerable variation; since, perhaps, it is not erring greatly, to say, that the woman is liable to conceive, at any part of the period of interval. It is generally supposed, however, that the most favourable instant is, immediately after this evacuation has ceased; perhaps this is so, as a general rule; but it is certainly liable to exceptions. The uncertainty of the moment, at which conception takes place, will always embarrass calculation; since a latitude of at least three weeks must be permitted.

427. But opportunities occur, where the utmost accuracy must prevail: one presented itself to my notice, many years ago. The husband of a lady who was obliged to absent him-

self many months, in consequence of the embarrassment of his affairs, returned one night clandestinely; his visit being only known to his wife, her mother, and myself. The consequence of this visit was the impregnation of his wife. The lady was at this time within a week of her menstrual period; and as it was not interrupted, was led to hope, she had not suffered by the visit of her husband. But her catamenia not appearing at the next period, gave rise to a fear she had not escaped; and the birth of a child, nine months and thirteen days from the night of this clandestine visit, proved her apprehensions too well grounded.

428. This case is remarkable for two facts: one, that a woman in perfect health, and pregnant with a healthy child, may exceed the period of nine months, by several days; the other is, that a woman may become impregnated just before her menstrual discharge, and not have it interrupted—and from the last, it seems, that a check is not immediately given to the catamenial flow, by an ovum becoming impregnated. This fact has perhaps frequently obtained, or at least more frequently than is imagined; and thus has created no inconsiderable error in calculation.

429. As we are entirely unacquainted with the causes which excite contractions in the uterus, for the purpose of expelling its contents at the expiration of nine months, or thereabouts, so we must remain ignorant of the conditions, both on the part of the uterus, and of the child, to make these contractions proper, or useful—all we at present know upon the subject is, that it is an established law; but it is more than probable, this law is governed by certain conditions, of which, we are altogether uninformed. The period of incubation being immutable, in every particular species of birds, we have some reason to believe, that the development of the fœtus has some agency in determining the period: but of this, we can say nothing positive; as so many apparent exceptions present themselves.

430. Many ingenious hypotheses have been proposed, to explain this interesting phenomenon; but all fail to be satisfactory, from the existence of one fact—namely: that in cases of extra-uterine conceptions, the uterus, at the expiration of

nine months, is as certainly thrown into painful contractions, of shorter or longer continuance, as if the fœtus had resided within its cavity. If this be true, it at once puts to flight the ingenious speculations of the theorist.

431. Be the *exact* period what it may, we have ascertained enough, to fix the common one at about nine months; and in making calculations, it is always best to allow a little latitude, beyond the time which the mere stopping of the menses would indicate; for as a general rule it will be found, that more women are impregnated, a few days after this evacuation, than at any other period.

CHAPTER XI.

OF LABOUR.

432. HOWEVER uncertain we may be of the efficient cause of labour, we are taught by long experience, that about the fortieth week of gestation an effort is made by the uterus to expel its contents; and this effort is called labour. This event rarely takes place so suddenly, or so silently, as not to present a very regular set of phenomena; which, from their universality, must be considered as constituting a part of this process; and some of them perhaps, as essential to its well performance. The appearances to which I allude may be divided, 1st, into those which affect the system at large; as rigors, and a number of what are denominated nervous symptoms; 2d, into those which affect certain portions of the system independently of the uterine; as frequent inclination to make water, or a suppression of it; and tenesmus; 3d, into those which affect the uterine system in particular; as a subsiding of the uterine globe; secretion of mucus; the dilatation of the mouth of the uterus; and its alternate contractions.

SECT. I.—1. *Of Rigors, &c.*

433. It is a very usual thing, especially, with nervous women, to be seized with rigors of more or less severity, in the very commencement of the silent preparations, or during the progress of the labour. These shiverings, or rather, tremblings, are never attended with a reaction of the system, and therefore, must not be considered as ushering in fever. These rigors would seem connected in some way or other with the dilatation of the os uteri; and I think I have observed them most frequently where this was rapidly performed; and that I do not recollect an instance of this taking place where the os uteri was not more or less dilated. One of the severest instances, I recollect to have witnessed, was with a lady, who awoke with it from a sleep; and who every moment expected her labour to commence; the nurse became alarmed, and I was immediately sent for—when I arrived, I found her still trembling very severely, but had not experienced any symptom of labour—she assured me, that nothing was the matter with her, except what I was witnessing; namely, an agitation of the whole body, which could not by any effort be controlled. It was an extremely cold night; and I had approached the fire, but, where I had not been five minutes, before my patient exclaimed she believed her labour was coming on; which really was the case; and so rapidly, as not to give me time to place her in a proper situation for delivery; in other words, she was delivered in less than five minutes from the time she first called my attention to her.

434. When it has taken place later in the process, I have always felt assured the mouth of the uterus was dilating or dilated. It sometimes occurs immediately after labour. It is never, so far as I have witnessed, attended by the sensation of cold. I have never known it do the slightest injury, though the patient and her friends are oftentimes much alarmed by it; and sometimes commit an error, by giving stimulating or heating drinks—in a word, it requires no attention.

435. Besides the rigor I have just mentioned, we sometimes

see a number of nervous, or hysterical symptoms attend the progress of labour: especially, with the first child, and the process be rather slow—such as a disposition to cry, a sense of suffocation or choaking, palpitation of the heart, &c.; all of these, however, are sure to disappear so soon as the labour becomes active, and the pains succeed each other quickly. Should they be violent, a little of the tincture of assafœtida, or Hoffman's liquor, may be advantageously administered. Under such circumstances, we should give the patient every reasonable assurance of a happy termination to her sufferings; and that there is nothing uncommon in her situation.

SECT. II.—2. *Frequent inclination to make Water, Tenesmus, &c.*

436. The uterus, even in the commencement of labour, if the fundus and body of this organ act healthily, is found very often so low in the pelvis, as to press upon some one portion or other of the bladder; and especially, the neck; this excites a frequent inclination to make water; in obeying which, the woman always suffers more or less inconvenience. Under such circumstances, the urine is very frequently driven from the bladder in small quantities, by every contraction of the uterus; this induces the woman and her friends to suppose, the liquor amnii is escaping. This I think, more frequently happens where the os uteri opens reluctantly; and where the pains are pretty frequent and severe—it needs no application, unless the inclination cannot be obeyed, and it amount to suppression; in such case, the catheter must be introduced; nor should this condition be suffered to remain too long without giving relief by this instrument. This suppression, so far as I have witnessed, never takes place but in protracted labours, and especially those, which may require artificial means for their relief. It should ever be a rule to inquire frequently into the state of the bladder in all cases of tedious labour; and, should the patient have been several hours without passing urine, the catheter should be employed; and particularly, if there be no prospect of the labour being speedily terminated. Much present inconvenience, and sometimes lasting mischief, has

arisen from the neglect of this precaution—I have seen an entire suppression for days, and relieved only by the occasional use of the catheter; I have known an opening take place between the urethra and the vagina by a slough, the consequence of long pressure; and witnessed an incontinency of urine from the same cause.

437. In a case of the latter kind, I was once consulted by my friend Dr. William Harris, in which entire relief was procured by the use of the tincture of cantharides. In this patient the stillicidium of urine was so constant, as to lead to the suspicion there was an artificial opening from the urethra; but a careful examination could detect no such state—I think this lady has had a child since that period without this accident being renewed; but of this, I am not certain.

438. It is not unfrequent, at the commencement of labour, for the bowels to be several times moved in pretty quick succession, accompanied with a strong effort, or tenesmus; or this inclination may take place after the labour is advanced, from the mechanical pressure the rectum suffers from the loaded uterus completely occupying the vagina. In the first case, should there appear to be sufficient time to permit the operation, a full dose of castor oil will be sure to remove it—should there not be time, five-and-twenty drops of laudanum will speedily quiet this inclination. In the last case, we can offer no relief, unless the rectum be impacted with hardened fæces, which do not escape from it, even by the repeated and hard pressure of the child's head—when thus situated, an emollient injection will almost always procure relief.

SECT. III.—3. *Affections of the Uterine System in particular.*

439. These last are of much more importance than those we have just been considering; and most of them may be looked upon as always accompanying every healthy labour; at least, they may be divided into

- a, The subsiding of the abdominal tumour.
- b, The secretion of mucus.
- c, The dilatation of the os uteri.
- d, The alternate contractions of the uterus.

a. Of the subsiding of the Abdominal Tumour.

440. When the uterus and pelvis are in a healthy condition, the fundus, at the last period of utero-gestation, is found little or no higher than at the eighth month; the reason of this is, first, the constant tendency which the body and fundus have to contract after the seventh month; this forces the uterine contents lower into the pelvis; and, second, the effect of these contractions upon the neck of this organ, obliging it to unfold, and thus to furnish additional room for the increasing fœtus. In consequence then of the development of the neck, the uterine contents must necessarily sink lower in the pelvis even without the agency of the contractions I have just spoken of; but especially, when they take place in their healthy, accustomed manner. These contractions can be ascertained to take place, by the introduction of the finger into the os uteri, and placing the extremity of it gently against the membranes; when thus situated, they will be found to be alternately tense and relaxed—the effect of these contractions will be the obliterating of the neck of the uterus, and eventually producing labour itself.

441. The sinking of the uterus has ever been justly considered a favourable circumstance; as it would seem to declare two important facts connected with delivery: 1st. A healthy condition of the uterus itself; and 2d. A healthy conformation of the pelvis.

b. The Secretion of Mucus.

442. This important discharge almost always takes place, even before other symptoms declare labour to be at hand. Its formation is the result of one of the numerous sympathies, to which the uterine system may lay claim. It is always a welcome harbinger to the accoucheur; as it almost always foretells the condition of the parts, or insures a favourable disposition in them to relax; and this disposition is, cæteris paribus, almost in proportion to the quantity secreted. When it does not appear in the beginning of labour, even where the pains are frequent and severe; we rarely find upon examination,

that the labour has progressed much, or that the os uteri is well dilated. But if a quantity be quickly secreted, even very soon after we have made an examination, it will be found, that the orifice of the uterus, has suddenly undergone a change, by being either perhaps well dilated, or easily dilatable—hence, we infer, it is in some way or other connected with, or instrumental to, this process.

443. This discharge is frequently tinged with blood; this colour is derived from the rupture of some small blood-vessels of the chorion, or perhaps of the placenta. When not tinged with blood, it much resembles the white of an egg. Dr. Denman calls it an increased secretion of the fluid natural of the parts; but to this it does not appear to bear the least resemblance—and if it be even furnished by the same vessels, it must be by an altered action of them.

444. The formation of this fluid answers two important ends: 1st. It lubricates the vagina; and thus permits the fœtus to pass more easily; 2d. It acts as a topical depletion to the neck of the uterus, vagina, and perinæum; and by this means facilitates their relaxation: this last I consider to be the chief use of this discharge; for were it confined to the lubrication of the passage, its utility would be much more limited, than it is found to be; as this end could be answered very well by artificial means; but this is well known not to be adequate.

445. The writers on midwifery have limited the use of this discharge, to a mere lubricant; and they carefully caution against too frequent touching; because, say they, it removes this substance from the vagina, and thus gives rise to more friction between the child's head, and the soft parts of the mother; now, were this the only evil to be apprehended by incautious or unnecessary touching, it could be easily remedied by any mild unctuous substance; but, as I have just observed, it is well known, if not acknowledged, that this by no means answers the purpose for which I believe this discharge was instituted.

446. By frequent and incautious touching, the glands furnishing this fluid are over-stimulated, even to inflammation; the secretion immediately ceases; the parts become tender,

and swollen; especially, the mouth of the uterus, should it not be fully dilated; the pains are less frequent, and less protrusive; the woman is restless, and enjoys no calm in the intervals of the pains; fever is excited; headach, thirst, and a hot skin follow; in a word, a new condition of the system arises, and almost suspends the business of labour. It would be in vain, under such circumstances, to offer a substitute for the absent mucus, by presenting to the parts, any unctuous, or mucilaginous substance, whatever—it can only be recalled by rest, and free blood-letting. To the last, we must have immediate recourse, if we wish to subdue the unnecessarily provoked inflammation; and to restore the uterus to the re-enjoyment of its suspended powers—in many cases like those just mentioned, I have seen this remedy act with the certainty, and promptitude of a charm.

447. The disturbance excited throughout the system when the vaginal surface becomes inflamed, distinctly shows, the important role the mucous secretion performs in the economy of labour; it demonstrates, that it is instituted for a much higher purpose than merely to lubricate the parts; it shows us clearly, that its formation is in some way or other connected with the dilatation of the os uteri, and the relaxation of the perinæum—let us beware then how we interrupt its formation, by rude and uncalled-for handling.

c. Of the Dilatation of the Os Uteri.

448. All writers upon midwifery, make this important operation the effect of mechanical impulse, though many of them, at the same time, are forced to acknowledge, they have seen it dilate, where neither the distended membranes, nor any portion of the child had entered its circle, to effect its opening by a wedge-like action. That the waters distending the membranes, and the child itself when powerfully impelled by uterine contraction, may occasionally have an influence on this operation, I am not disposed to deny; but if it take place, it never opens this part either so kindly, or so effectually, as when this is achieved by the powers destined for this

purpose. Before I offer a different explanation of this phenomenon, it will be necessary to consider the different kinds of contraction possessed by the uterus: they are,

449. *a.* The contraction of the longitudinal fibres of this organ.
b. The contraction of the circular fibres.
c. The simple contraction.
d. The compound contraction.
e. The effects of the tonic contraction.
f. The cause and effects of the spasmodic or alternate contraction.
g. The manner in which the os uteri becomes opened.

a.—The Contraction of the Longitudinal Fibres.

450. By the longitudinal fibres of the uterus, I wish to signify those fibres, upon the contraction of which, the uterus will be shortened in proportion to the force of this effort, from its fundus to its mouth. The effect of this contraction is such, as to make the contents of the uterus approach its mouth; as this must necessarily, from its organization, be the least resisting part—this effect will constantly be in proportion to the diminution of resistance, and the force with which these fibres act. It will be readily perceived, that if the uterus diminish in length, it must necessarily increase in breadth; or, in other words, the circular fibres will be put upon the stretch, until the diminished length shall be compensated, by the expansion of the mouth; in this case, the membranes become powerfully distended, and lengthen in the direction of the longitudinal axis of this viscus, nearly as much as this set of fibres shorten themselves. The action of the longitudinal fibres is at right angles with the circular; and has a constant tendency to oppose, or overcome the disposition of the circular fibres to narrow the uterus in its transverse direction.

b.—The Contraction of the Circular Fibres.

451. By the circular fibres I mean those, which, by contracting, diminish the capacity of the uterus in the direction

of its transverse diameter; and should they act alone, and the os uteri be closed, will necessarily force the uterus to stretch in the direction of its vertical, or longitudinal diameter. These fibres may be considered as running round the uterus, from the fundus to the termination of the neck; they have, as I shall attempt to prove presently, but an indirect agency in furthering the expulsion of the uterine contents; their action, especially at the neck of the uterus, is almost in direct opposition to the longitudinal fibres, and serves rather to retain, than to expel the contents of the uterus. It is by the successful and uniform contraction of these fibres; and especially, those of the neck, that the woman is enabled to carry the produce of conception to the full period of utero-gestation. They may act independently of the longitudinal fibres; or at least, they may act with greater force, as I shall have occasion to remark by and by.

c.—Of the Simple Contraction.

452. When either the longitudinal or circular fibres act independently, "the simple contraction," takes place. It may be asked what evidence have we that one set of fibres may act independently of the other? I answer, we have abundant proof of this in the contractions which take place towards the latter period of gestation; and of which we are made sensible, by passing the finger, as already mentioned, within the os tincæ, and placing its extremity against the membranes—this tense and relaxed condition of the membranes, which is thus perceived, is owing to the longitudinal fibres acting alone; for did the circular also act at the same time, it would be perceived by the finger, by the edges of the os uteri stiffening, or becoming rigid; but this is not the case. On the other hand, we prove that the circular fibres may contract firmly, and for a long time, without the slightest co-operation of the longitudinal fibres, by this well-known circumstance; that, when the waters have been discharged, the uterus is found to embrace the body of the child firmly, and no pain is experienced; in this case it is evident, that the circular fibres contract alone,

as there is no effort to expel the child, which would be, did the longitudinal fibres exert an influence at the same time.

d.—Of the Compound Contraction.

453. This contraction is the effect of both sets of fibres acting simultaneously; this is proved by the mouth of the uterus attempting to close itself during the period of action, and by the head, or presenting part, evidently sinking lower (though perhaps to rise again immediately) in the pelvis. Now, these two circumstances could not happen at one and the same time, did not both sets of fibres contract together—it is this compound action, which attends the commencement of all healthy or regular labours.

c.—The effects of the Tonic Contraction.

454. The tonic contraction cannot be called into action, until the uterus is either in part, or altogether deprived of its contents; but if this happen, even in a small degree, the whole of the fibres of which the uterus is composed, begin to shorten, or fold themselves up, and thus make the uterus accommodate itself to the quantity, and almost the shape of its contents. In consequence of this, the direction, and perhaps, size of the blood-vessels of this organ are changed; and though in no very sensible degree at first, or when its contents are but little diminished, yet it will be found, that the changes will bear an exact proportion to the evacuation from the uterus. It is this contraction which preserves the woman from a fatal hæmorrhage, when the placenta is either partially or altogether detached; it serves also the important purpose of keeping the uterus in constant contact with its contents; and thus, enables its fibres to act with more efficiency upon the body, to be expelled; it is also this contraction which opposes the re-distention of the uterus, and this oftentimes so obstinately, where the waters have long been drained off, as to render turning impracticable.

f.—Of the Cause and Effects of the Alternate Contraction.

455. This contraction is often called the spasmodic contraction; but I prefer, as I have already declared, the term alternate or periodical contraction; for it is not necessarily accompanied with pain.

456. The cause of these contractions, like the contractions of any other muscle, must be a stimulus of some kind or other; I have already declared my ignorance, of what first excites the uterus to contraction, at the end of nine months; though we are very often enabled to detect it, before that period; for it is always found, that whatever can stimulate this organ to a certain degree, is capable of provoking its action; and if not interrupted by proper counter-agents, it goes on, until the contents of the uterus are expelled. So much for the causes which may excite the uterus to action; but what is it that gives these contractions their alternate, or periodical form? So far as I know, a solution to this question has never been given; indeed, I am not certain, it has ever been asked; if I fail, it must be remembered, I only hazard a conjecture; and it will but share the fate of the thousands, from the time of Hippocrates to the present moment.

457. In order that a muscle may renew its contraction, it must by some antagonizing power be elongated, after it has become relaxed; in almost every part of the body this power is at once discoverable; but where, and in what resides, that, which enables the uterus to repeat its efforts? I am of opinion this power depends upon its own structure, and economy—I shall now attempt to prove this. The uterus, by impregnation, becomes of course distended, in proportion as that process advances—it is, therefore, elongated, or its fibres put, to a certain extent, upon the stretch, and are thus enabled to contract, so soon as the appropriate stimulus be applied. What is the effect of this contraction? An approximation of the uterine fibres; a compression of all its blood-vessels, with the immediate discharge of a large portion of blood from them into the general system: in consequence of this, the uterus becomes

paler, and the vessels empty, or nearly so. The blood escapes by means of this contraction quaquaversum; and to facilitate its departure, the anastomoses between the arteries and veins, are unusually frequent; and the latter are not furnished with valves.

458. What is the effect of the subsequent relaxation? The fibres of the uterus become longer, straighter, and more easily distensible; the large vessels and sinuses are less compressed, and consequently will now permit the natural resiliency of their coats to act—while the influent blood will suddenly fill them, and thus restore the equilibrium which the previous contraction had destroyed—now, this rapid influx, will not only distend the empty vessels, but will also prove a powerful stimulus to the uterine fibres; and thus urge them to renew their contraction; and this will be repeated from time to time, until there be no farther necessity for its continuance. This plethoric state of the uterus, if we may so term it, is proved by the heightened colour of its parietes.

459. I presume, when this contraction is best performed, it is chiefly by the exertion of the longitudinal fibres.

460. This opinion is founded upon the relative strength of the two sets of fibres. I believe that the longitudinal fibres, or those which by contracting shorten the uterus, are the stronger of the two; and for the following reasons: 1st. Because, if they were of equal strength, delivery could not take place; as the circular fibres, by their contractions, would rather embrace and retain the child, than advance it; since, they tend to diminish the transverse diameter of the uterus; and consequently, their action is, as I have already observed, (450) at right angles with the action of the longitudinal fibres. 2d. When either the absolute, or relative strength of the circular fibres is increased by any cause whatever, labour does not advance; therefore, the circular fibres do not directly contribute to the expulsion of the child. 3d. As the circular fibres do not, from the very nature of their action, contribute to the immediate advancement of the child, as just declared, they must be considered inferior in power to the longitudinal fibres; since, the child is expelled without their direct agency—there-

fore, the latter set of fibres has not only to move the child, but to overcome the resistance the former gives, by the direction of their action. We see this finely exemplified in those cases, where the waters have been discharged early, and the uterus closely embraces the child; and where, by virtue of its tonic contraction, it even accommodates itself to the inequalities presented by the child's body; in such instances, labour would be stationary, did not the longitudinal fibres possess greater power, than the circular.

g.—The manner in which the Os Uteri becomes opened.

461. With these facts before us, I shall attempt the explanation of the dilatation of the os uteri. At the full period of utero-gestation, the process called labour must take place, that the womb may expel its contents; for this important end, its body and fundus must contract, while its neck must dilate—the question now is, how is this last effected? During the whole period of gestation, the lower part of the womb is kept closed by the contraction of the circular fibres: this condition must now be overcome by the exertions of the longitudinal; therefore, these two sets of fibres may, without a strained comparison, be considered as antagonizing powers. During gestation, at least until the seventh month, the longitudinal fibres yield much more willingly than the circular, to the distending force of the increasing ovum; this may be owing to their greater length, or their greater laxity; and hence, perhaps, the lengthened form of the uterus. This stretching must have a limit, or a maximum; and when this arrives, they will necessarily be stimulated to contraction; and this really takes place at this period, as I have several times declared, and attempted to prove. Now, the effect of this effort, which is almost constantly repeated after it is once commenced, is felt by (until now) the passive neck of the uterus; and obliges it not only to support the action of the body and fundus, but also the weight of the child and waters; these joint powers make it unfold itself, and to become identified with the other portions of the uterus; so that, at full time, it forms a portion of that globe

which is placed in the cavity of the pelvis; and its distinctive mark, or projection, is lost in the uniform surface presented to the finger.

462. From the moment the neck begins to be operated upon, it begins to lose in thickness, and in length—and these changes commence at that part next to the body of the uterus; so that the extremity of the neck, or the *os tinæ*, is the last portion which is effaced. When the longitudinal fibres act, the circular ones become a little stretched, in consequence of the length of the uterus being diminished; and I have already said, that the uterus cannot diminish in one direction, without increasing in another, while the membranes are entire; and this must be the case, so long as the mouth of the uterus remains shut; but this cannot be very long; as it is obliged to sustain the whole pressure of the contents of the body and fundus, and this in proportion to the power with which the longitudinal fibres may contract, as well as the force exerted by a part of the circular fibres, which are now called into action, by the contraction of the longitudinal, distending them, until they themselves contract from this very stimulus.

463. This action, and re-action, is reciprocated for some time; the longitudinal fibres shortening the uterus from fundus to mouth; while the circular is attempting to resist the effects of this, by also contracting, and thereby opposing the tendency to distention in the transverse direction of this body—the effect of this compound action is, to direct the body to be moved, towards that part, which offers the least resistance to it; and this is the small opening, called the *os uteri*—the fibres which immediately surround this opening, and oppose its immediate dilatation, gradually become weakened by the superior strength, and persevering action of the longitudinal fibres; and, after a struggle of greater, or less severity and duration, are obliged to yield; and in their quiescence, the dilatation of the *os uteri* consists.

464. In the whole of this arrangement, we see no necessity for the mechanical agency of the membranes acting on the circle of the *os uteri* like a wedge, which Dr. Denman* speaks of

* Introduction, Francis's ed. p. 278.

as important to its dilatation—for every day's experience proves, that the most perfect, and speedy relaxation of the mouth of the uterus takes place, without any such influence. Indeed the Doctor* seems to yield this point, by confessing, that “in many cases the membranes break spontaneously long before this period (that of the os uteri being wholly dilated) without any material inconvenience.”

465. If it be asked, why are those labours, in which the membranes give way early, always more tedious, and painful, than those, where they are preserved?

466. I would answer, that this is by no means, always the case; and that when it happens from the delicacy of the membranes, and they have yielded before the genuine expulsive action has commenced from the mere contractions which we say are constantly present at the last period of utero-gestation, the uterus may be said to be surprised (if I may use the expression) into contraction before the natural stimulus is given; in consequence of this, the uterus is made to embrace the child closely, by virtue of its tonic power; and is sometimes, by this event, thrown into irregular, and painful contractions, by the unequal surface which the child's body presents to its internal surface—for the evacuation of the waters prevents the lower part of the uterus from being fully stretched, by the contractions of the body and fundus; and by this means, retards the weakening of the circular fibres, at this part;—a circumstance of considerable moment to the dilatation of the os uteri. If an unusual degree of pain be excited by the premature escape of the waters, it is not because the membranes and waters fail in their wedge-like agency to dilate it; but because, the uterus is prematurely excited into action; and of course, before all the terms of pregnancy, have been complied with—as the waters, while retained, serve to insure an equal distention of that part of the uterus, which we have agreed to call its neck, in the unimpregnated state, and which is the part obliged to relax during labour, that the child may escape from the general cavity of this organ.

* Introduction, Francis's ed. p. 280.

467. I am abundantly confirmed in this opinion by the fact, that, if the waters have not prematurely passed off; or, in other words, if at the time of their escape, the uterus is prepared for the regular routine of labour, the mere circumstance of their evacuation, (*cæteris paribus*,) will neither materially retard the dilatation of the os uteri, nor necessarily create any unusual delay to delivery—of this, we have additional proof from Dr. Denman, as just quoted. In this admission however, it must be recollected, that I consider the waters as useful, by their equal pressure upon the lower part of the uterus, and by distending, and, at the same time, by the same agency, weakening, the circular fibres of this part; and thus indirectly favouring the dilatation of the mouth of the uterus.

468. I may therefore, safely I believe, lay it down as a general rule, that the early rupture of the membranes does not necessarily produce a more painful, or tedious labour, unless the uterus is by this means immediately excited to contraction; for should not pain be produced immediately, or should the legitimate pains of labour have preceded, this operation will, all things being equal, be as in ordinary cases; for I have many times seen patients, with whom the first intimation of labour being at hand, was a discharge of the liquor amnii; and this not instantly followed by pain; but when pain did come on, the labour was speedily finished—in these instances, the mouth of the uterus opened as speedily and as extensively, as though the membranes had not given way, and the waters discharged.

469. Let any one who has made an attempt to penetrate the rigid os uteri be asked, if a direct action on its edges by the hand formed in a wedge-like shape, and the application of a force of no mean power, will always be sufficient to overcome the opposition of the circular fibres of the neck? He will answer, if he be candid, No; and will add, that the part would suffer laceration rather than yield to the force employed. Is it reasonable, then, that a wedge, formed by the smooth, and comparatively delicate membranes with the liquor amnii within them, shall, as a mere mechanical power, however aided by a strongly contracting body and fundus, achieve more, than the

well-directed force of the hand as just stated? Let any one familiar with the general manner in which the distended membranes present themselves at the orifice of the uterus during pain, be asked, if their presence and agency, at such a moment, presents to his mind, the idea of a mechanical power, attempting to overcome a resistance offered by the contraction of the circular fibres? and, I am sure, he would unhesitatingly say, No.

470. When the os uteri does dilate, it is not by its edges being stretched mechanically—it is an absolute inability in the circular fibres to maintain a state of contraction, and, for the time being, may be considered as paralyzed, or excessively fatigued—or perhaps, more properly speaking, it is the relaxation of a sphincter, not subject to the control of the will.

471. I admit, that the os uteri is sometimes forced to open in a degree, by the membranes, or the presenting part engaging in its circle, when strongly impelled by the contractions of the body and fundus; but, when this happens, the orifice does not present the same feel as when it dilates by its regular, and natural process; it is evidently perceived that it yields with reluctance to a power, that seems rather to threaten its safety, than to be obeying a law intended for its preservation.

472. When labour is most easily, and naturally performed, there appears to be a tacit understanding between the longitudinal, and circular fibres; the latter relax suddenly, and extensively; while the former, contract so silently, but so effectually, that we cannot discover the agencies by which they are effected—who has not witnessed, the almost instantaneous opening of the os uteri; been sensible of the retraction of its edges over the child's head; and the delivery of the child follow at the same moment?

473. To the explanation just given of “the manner in which the os uteri becomes opened,” it is objected, “that if a muscular part is suddenly extended, its contractile powers are brought into violent action; but let the part be extended gradually, as is, of course, the case where the extension depends upon the slowly increasing size of the ovum, and when it has arrived at its “maximum of stretching,” its antagonistic powers appear to be destroyed; for contraction either does not

take place at all, or very imperfectly. It is well known that surgeons act upon this principle, when they have to overcome the obstinate contraction of muscles: they exhaust the powers of the part, by keeping up a gradual extension.”*

474. The objection just stated, is ingenious, but not valid: 1st, because there is no analogy between the inordinate stretching of a muscle, not organized for this purpose, and the expansion of the uterus, to which this capacity is most amply given; 2d, that a period must arrive, in the stretching of even the common muscles, however gently performed, at which they would contract, and that violently, if permitted, from the stimulus which this “extension” must offer; and it is precisely so, with the uterus—its organization is such, as to support a great deal of distention, before it is, like the common muscle, stimulated to contraction; 3d, the bladder is gradually distended, by the percolating urine, until its parietes are put upon an uneasy stretch; it then gives warning, that it can no longer support this state with impunity; for the distention has arrived at its healthy “maximum,” and must not be carried farther; 5th, that were the bladder, or the uterus itself, suddenly stretched to the extent of their capacity, they would as certainly lose the power of contraction, as the muscles over which the surgeon exerts his control.

CHAPTER XII.

CONDUCT DURING LABOUR.

475. IN the management of labours, much judgment and caution are required, that a simple and natural case, may not be converted into a laborious, and dangerous one. Ill-directed measures will always have penalties attached to them; and it is only by taking a proper view of the nature of the labour, that it can be conducted to a happy issue. There is no one circum-

* Lond. Med. & Phys. Jour. for August, p. 143.

stance, that so largely and certainly contributes to divert nature from her proper course, as the persuasion that art can always benefit her—hence, the constant employment of ill-directed manœuvres by an ignorant accoucheur, or midwife. And unfortunately for the interest of humanity, it requires more knowledge *not to be officious*, than falls to the share of many of those, who pretend to practise midwifery. It is a vulgar prejudice, that great and constant benefit, can be derived from the agency of the accoucheur; especially, during the active state of pain; and this feeling is but too often encouraged by the ignorant, and the designing, to the injury of the patient, and to the disgrace of the profession. When all things are doing well, the *active* duties of the accoucheur, are limited indeed—it is but where the contrary obtain, that he can be said to be actively useful; but to discriminate between these two conditions, requires a thorough knowledge of what a healthy labour consists; and this he can only with certainty know, by being well grounded in the principles of his profession, aided by an extensive, or, at least, a well directed experience.

476. To conduct a labour with safety, the practitioner should be well acquainted with its phenomena; the order or succession of them; be able to decide, when certain of them are wanting, or are in excess; to estimate the relative or positive importance of such; the force or effect of each pain; the necessity of preserving, or of wasting the waters; the resistance the os uteri, or external parts may offer; the situation of the former, as regards the presenting part; the certainty of the presentation, both generically and specifically; the mode of rectifying any error of presentation in proper time; the capability of doing this with the greatest advantage to the patient and to the infant; and “though last, not least” in importance, he should be able to pursue a firm, candid, and feeling conduct throughout the whole scene, that he may not be betrayed into indiscretion, by the overweening anxiety of the friends of the patient; that he may not lose the important moment to act, from an apprehension that blame may attach upon the disclosure of its necessity; and that the sufferer may derive every advantage his kindness and sympathy may afford.

477. That man is but little used to the exercise of the social virtues, who is ignorant of the influence a kind and feeling conduct has upon his suffering patient—to her, it almost atones for the want of skill or experience; and to deprive her of it, is withholding a right for which nothing can compensate.

478. She is entitled to all the consolation a well-grounded assurance of a happy termination of her sufferings can afford; and this should not be withheld from time to time, that she may profit by its encouraging influence; yet she must not be betrayed into false hopes, by an ill-judged promise of a speedy issue, when the period, from the very nature of the case, must be remote—nothing perhaps is so destructive to confidence, as the ill-requited promises of this kind; nothing so sickening to the heart, as this “hope deferred.”

479. The young practitioner should be very sparing of promises; for it requires long experience to make them with any kind of certainty; and until he possess this, they should be evasively given, that sad disappointment may not ensue. For a woman will support herself with much firmness, where relief is believed to be even very distant, but certain; while she would flag, under the failure of often repeated promises of speedy relief. Her mind should be kept as free from anxiety as the nature of her situation will permit; therefore, no conversation should be indulged in, that might for an instant excite her apprehensions—conversation should be cheerful, and free from the idle discussions of danger from similar situations; and should be as void of levity, as of gloom.

480. To the well-bred gentleman, it would be almost idle to say any thing on the score of decency; but as errors may be unconsciously committed, it may be proper to suggest a few cautions upon this head, that may be important to the welfare of the well-meaning, but inexperienced practitioner.

481. 1st. Let all communications to the patient of a delicate nature, be conducted by a third person; the nurse when present, should always be that person; in her absence, any elderly friend.

482. 2d. Endeavour, by a general and well chosen conversation, to divert the patient's mind as much as possible from

the purpose of your visit, when your services are not immediately required.

483. 3d. When your presence is not absolutely necessary in the sick room, be as little in it as will be consistent with your duty—by this you remove restraint; and apparently abridge the period of your watching.

484. 4th. Should you judge the situation of your patient, requisite to be ascertained, let the proposition be made by a third person, as the nurse; and urge the circumstances which lead you to believe, it would be important; as the length of time the patient has been in pain; their force and frequency; the evacuation of the waters, if it has taken place; and, above all, the necessity of ascertaining the progress of the labour; and whether the presentation be proper.

485. 5th. If, after you have made your examination, you should be importuned for your opinion of the nature of the presentation, and the duration of the labour, do not commit yourself by any positive declaration, unless you are certain of the first, and pretty sure of the latter.

486. 6th. Before you proceed to the examination, let your patient be placed with the most scrupulous regard to delicacy, as the slightest exposure is never necessary; let the light be excluded from the room by closing the shutters if it be day, and by the concealment of it, if it be night. So much for the regulation of the conduct of the accoucheur in his intercourse with his patient; but it is also important that we lay down some general rules by which he, and the patient shall be governed, during the progress of the labour.

487. 1st. The patient is to be forbidden every thing which shall have a tendency to excite the system; she will therefore be prohibited wine or any other liquor; or even stimulating food.

488. 2d. She should be directed to keep as quiet as possible; and the preposterous custom, of obliging her to walk the floor with a view to increase the pains when tardy, should be peremptorily forbidden.

489. 3d. Inquiry should be made as to the state of her bowels; costiveness should be removed by castor oil, magnesia,

or any other mild cathartic, if there appears to be sufficient time for its operation; if not, let it be effected by a simple injection.

490. 4th. Her dress should be such, as to require no alteration after delivery; therefore, her linen should be so placed, as to be out of danger of becoming wet from the discharges; her petticoat should be without shoulder-straps, that it can be easily removed; and a bed gown should protect the upper part of her body.

491. 5th. The bed should be so arranged as to protect it with certainty from injury by the discharges; for this purpose a blanket should be folded several times, and placed beneath the under sheet, at the part of the bed on which the woman will permanently lie; a sheet as often folded should be placed over the under sheet, so as to correspond with the blanket below; on this the woman will be placed after delivery.

492. 6th. The woman will be placed for labour upon her left side, at the foot of the bed, in such manner, as will enable her to fix her feet firmly against the bed-post; her hips within ten or twelve inches of the edge of the bed; her knees bent, her body well flexed upon the thighs; this position will bring the head and shoulders near the centre of the bed, which must be raised to a comfortable height by pillows—the part of the bed on which the patient is now placed, must, like the part on which she is permanently to rest, be secured by folded blankets placed over the under sheet.

493. 7th. When the patient is about to be placed for labour, the practitioner should withdraw, and leave this arrangement for the nurse; she should be covered entirely except the head; if in winter, by a blanket or coverlet; if in summer, a sheet will be sufficient.

494. 8th. When about to make an examination, choose the time of a pain for this purpose, and proceed to it with the most rigid observance of delicacy—to the very young practitioner it may be well to observe, that the chair on which he is about to sit, should be so placed that his right arm should be next to his patient; if this be not attended to, his position will be both awkward and fatiguing.

495. 9th. Do not remain with the patient longer than the condition of the labour may make necessary—that is, if it be not well-advanced, time should be given for its farther progress; but, from time to time, ascertain its condition; but beware of officious and unnecessary touching, for the reason we have elsewhere assigned.

496. 10th. Should the pains be efficient, and the os uteri well dilated, or even easily dilatable, and the membranes entire, let them be ruptured by the pressure of the finger against them, or by cutting them with the nail of the introduced finger; and this should be done for the following reasons: first, because, when the mouth of the uterus is dilated or even easily dilatable, the membranes have performed every duty they can perform; secondly, that very often the advancement of the presenting part is retarded by the strength of the membranes, and the labour much protracted by it; thirdly, that very frequently the pains are increased both in force and frequency, and the labour much abridged by it; fourthly, it gives much greater security to the woman after delivery, by permitting the tonic contraction to take place before it is accomplished, and thus insuring a more speedy delivery of the placenta, and also a greater chance of exemption from hæmorrhage.

497. 11th. When the head is emerging from under the arch of the pubes, the perinæal tumour should be carefully supported by placing the palm of the left hand, with a cloth interposing against it, and retained there until the head is entirely freed from the vulva.

498. 12th. When the head is in this situation, it should not be meddled with, by making an effort to withdraw the body; the delivery should be trusted to the subsequent contractions of the uterus, that this organ need not be too suddenly emptied, and by this means, give rise to flooding.

SECT. I.—*What may be necessary to the Child.*

499. Having conducted the labour to the delivery of the child, a new series of duties commences, the high importance of which renders it proper we should lay down some rules for their government.

500. The first great object after the delivery of the child, is the establishment of its respiration ; for the most part this takes place the instant it is in the world ; indeed it very often cries, even forcibly, so soon as the head is protruded through the external parts. But should it fail to do this, every attention should be immediately paid, that it may be established. The child may be born in one of the following conditions. 1st. Feeble, (but not exhausted,) by either the delay in its delivery ; by the compression of the cord ; or from a delicacy of stamina : these several conditions may be attended by a pulsating cord, or one in which pulsation has ceased.

501. In cases in which the cord still pulsates, there is but little risk, as long as this action continues ; and for the most part, all that is necessary is, to remove all impediments from the mouth which interrupt the passage of air to the lungs ; and by dashing upon its body some cold spirits or brandy ; this almost instantly makes it send forth cries, which are most welcome to the accoucheur, and reward the suffering mother. But should there be no pulsation in the cord ; the child's whole body flaccid ; and especially, if upon dividing the funis, a drop or two only of black blood issue from the cut, the case is desperate, but not absolutely hopeless.

502. We should in this case, 1st, carefully remove any mucus that may be in the mouth, fauces, or trachea, by wiping as far as we can reach with the little finger armed with a piece of fine dry rag ; 2d, inflating the lungs, by holding the nostrils, and applying the mouth to that of the child, and forcibly attempting to expand its lungs ; and then expelling the air from them by a gentle, but pretty firm pressure upon the thorax ; 3d, by placing the child's mouth downward, and holding the body and hips higher than the head ; at the same time gently shaking the child, so as to disengage any mucus that may be lodged in the trachea ; and permitting it to flow from the mouth, by making this the depending part—then cautiously wiping the mouth as just directed ; renew the inflations, and the suspensions alternately, until the mucus flow from the mouth ; by proceeding in this manner, I have often had the satisfaction of seeing the child restored. It is a circumstance worthy of re-

mark, that, owing to the tenacity of the fluid within the wind-pipe, we cannot at first force air into the lungs; but, by a little perseverance, we overcome this obstacle, and the mucus becomes sometimes so thinned, as to flow readily from the mouth, and at once relieves the child—this operation should never be neglected; nor should it be too soon relinquished; especially, if we can excite a few pulsations of the heart, or in the cord; these should be carefully examined after each inflation; the pulsation of the heart is best detected by placing the ear immediately over its region; that of the cord, by pressing it between the thumb and finger, close to the umbilicus. 4th. By the application of heated cloths frequently renewed: this should be immediately tried, and persevered in until the last moment. I much prefer dry warmth as an application to the child's body, to the warm bath, which is so much relied on in such cases; I think the latter decidedly injurious, though I cannot pretend to explain why. Might not a properly constructed syringe be highly useful in removing the obstructing mucus?

503. When the child shows signs of returning life, it is generally by a deep short sob; this may be repeated at longer, or shorter intervals; but when we think the interval too long, we should renew the inflations, &c. Should respiration be restored, (but in a feeble manner) we should carefully guard against any thing like fatigue to the child; it should not on any consideration be disturbed, by dressing; on the contrary, it should be carefully placed in such a situation, as to permit the frequent renewal of warm applications to it, which are of primary consequence to the little sufferer. I have had more than once the mortification to see all my endeavours frustrated, and all my hopes destroyed, by an inattention to my directions upon this point, though given as impressively as I well knew how.

504. 2d. The child may be born healthy and strong, with a brisk pulsation in the funis, yet not cry; because a mechanical obstruction from mucus prevents the ingress of air into the lungs. This mucus may be in the mouth or posterior fauces, or it may be in the trachea—if in the first, we may entirely remove it by a piece of fine rag upon the little finger, as just suggested; (502) if in the second, by suspending the child as

just directed, which will seldom fail to give relief, by permitting the mucus to run from the mouth. I do not recollect an instance, where it was necessary to have recourse to inflation, while the pulsation in the cord continued; but if it stop before respiration is established, recourse must be had to inflation. When the child is about to make attempts to cry, I often enable it to succeed, by dashing its body with spirit or brandy as directed above.

505. 3d. The child, from a long delay in the passage, or from having its neck tightly begirt with the cord, may be still-born; in this case its face will be black, livid, and swoln—the arteries may have ceased to beat, or may beat vigorously—in such cases, nothing can save the child from immediate death, but instantly abstracting blood by cutting the cord—should the pulsation have ceased, we may sometimes still succeed in drawing some blood by forcing it from the cord, and then employing inflations, &c.; if pulsation continue, we must abstract blood by also cutting the cord—the quantity to be drawn, must be regulated very much by its effects—when respiration is established, we need draw no more; but until we see some signs of this about to take place, we may abstract pretty freely, as this process most probably is interrupted by the congestive state of the brain, which can only be removed by pretty ample depletion.

506. When respiration is established either spontaneously, or by artificial means, we apply a ligature to the cord, provided pulsation has ceased in it; but not until then. The best ligature is a portion of a skein of fine thread; if this be not at hand, a piece of narrow tape or flat bobbin will answer perfectly well—it should be applied an inch or an inch and a half from the umbilicus, and should be drawn sufficiently, to make it securely tight—this precaution is necessary, as otherwise bleeding sometimes ensues. The cord should be cut by a pair of scissors, half an inch at least beyond the ligature—it is never necessary to place two ligatures, except there be twins—indeed, it is best not to do so;* as the evacuation from the open extre-

* “No harm can possibly arise from the application of two ligatures, and we consider it the safer practice.” (Lond. Med. & Phys. Journ. Aug. p. 145.)

I regret the gentleman who honoured this work with his notice, did not state

mity of the cord will yield two or three ounces of blood sometimes, which favours the contraction of the uterus, and the expulsion of the placenta—it favours the contraction of the uterus, by the vessels of the placenta emptying themselves, and diminishing in bulk; this reduction proves a general and grateful stimulus to the uterus, and promotes its contraction; this contraction acts upon the placenta, so as to disengage it from its surface, that it may be expelled.

SECT. II.—*The Unassisted Delivery of the Placenta.*

507. After the child is separated from the mother, it is to be given to the nurse, and removed from the bed-side—the next duty is to deliver the placenta—before this is attempted, we should be first assured of the condition of the uterus; and this is to be ascertained, by examining it through the parietes of the abdomen, by placing a hand over its region. This examination will discover this organ in one of two conditions; namely, contracted or not contracted. If the first, the placenta may be delivered, provided it be loose in the vagina, by tightening the cord with the left hand, and tracing it with the fore finger of the right, to the placenta; which is to be hooked with the introduced finger, and gently drawn by the cord, with the other hand, until it pass through the os externum—we should then grasp it with both hands, and give it several twirls, to twist the membranes, that they may be withdrawn from the uterus whole—the advantage of this is, we prevent a terrible stench, by thus removing them; as well as occasionally alarm, for we have known them about to escape from the vagina a few days after delivery, to the great terror of the patient and her friends; being mistaken for a falling down of the uterus.

508. When the placenta is delivered, it is to be carefully placed in a basin, or pot, and removed—the abdomen should again be examined, to ascertain the condition of the uterus; should it be well contracted, which is easily determined by its

why, two ligatures were safer than one. An experience of six-and-thirty years has not furnished me with an instance, in which inconvenience has resulted, where one only has been applied.

hardness and size, we should entertain every reasonable hope that every thing is so far well; but should the uterus be found flaccid, brisk frictions with the open hand, with the occasional grasping pressure of the fingers, should be instantly applied. Should these be successful, the uterus will be found to harden gradually, as well as diminish in size under the hand. At this moment, perhaps, there may be a sudden discharge of coagula from the vagina, accompanied by some pain, which very frequently alarms the inexperienced practitioner, and renders him doubtful of the propriety of the plan he is pursuing—but so far from being alarmed at this circumstance, he should felicitate himself upon it; as it is a proof that the uterus is contracting. The frictions should, however, be continued for some time longer; or until the uterus becomes very hard, and appears to be fast retiring within the pelvic cavity.

SECT. III.—*Of Putting to Bed.*

509. As the patient is delivered at a part of the bed distant from where she is to be permanently placed, the removal from one to the other, is familiarly called by the old women, “putting the patient to bed.” This operation consists of several details, which are highly important to be understood by the young practitioner; though the executive part does not strictly belong to him. This “putting to bed” consists, first, in the entire removal of all the wet things that may be about the woman, and substituting dry ones; second, in her being lifted or slid into the place where she is permanently to lie; third, in the application of a bandage to the abdomen, pinned as tightly as the patient will find comfortable.

510. It may be asked, is every woman to be put to bed, so soon as she may be delivered? I say, No—the “putting to bed,” must be governed by the following circumstances: first, if the patient be very much exhausted by the severity of the labour, by a previous flooding, or any other circumstance that may render her feeble, or faint, she must not be removed until she recover some of her spent strength, should this require even several hours; second, should the patient, from her exer-

tions during labour, or the heat of the weather, be in a perspiration, she should not be disturbed until this has gone off entirely; third, should there be too great a discharge or flooding, the patient must not be moved, until this is much diminished or stopped. But if neither of these conditions present themselves, I always direct the patient to be put to bed immediately, as I am persuaded she will bear it better, than if suffered to remain any time.

SECT. IV.—*Of After Pains.*

511. Almost every woman, with the exception perhaps of the first child, is tormented with what is called “after pains;” these pains are produced by the renewal of the alternate contractions of the uterus, in consequence of coagula forming from time to time, within its cavity, which, as they are foreign bodies, it is obliged to expel. These coagula are formed by influent blood, from the extremities of the vessels exposed by the separation of the placenta—and they will form in proportion as the uterus may be more or less disposed to contract; therefore, it is found that the more this organ is closed by virtue of its tonic power, the fewer and milder will be the “after pains:” hence, these pains rarely occur with a first child, as the powers of the uterus are then more perfect, or less exhausted. There is a remarkable circumstance attending these pains, which deserves notice, though it may not be explained; which is, their almost uniform renewal, upon the application of the child to the breast, if they have been suspended even for hours; and the aggravation of them, if they have not.

512. These pains, by the old women, are considered useful, because they are almost always accompanied by the discharge of coagula, which they say must come away, and, on this account, they oftentimes refuse to give any thing for their relief. But this doctrine, were it strictly acted upon, would subject the patient to dreadful tortures, sometimes for many days and nights together—I have ever regarded after pains as an evil of magnitude, and always endeavour to prevent them as quickly as possible—they interrupt sleep, which is at this time of

especial importance; and they also needlessly excruciate the body.

513. I prescribe camphor, generally, for their relief, in the following form:—

R. Gum Camph. ℥ij.
 Sr. vin. rect. q. s. f. pulv.—Add
 Pulv. G. Arab. ℥iij.
 Sacch. alb. q. s.
 Aq. font. ℥vj.—M.

Of this, a table spoonful is given every hour or two, until the pains cease—or, I sometimes give ten grains of this substance finely powdered, every hour or two, mixed in a little syrup of any kind; this appears to answer nearly as well as the julep just mentioned.

514. The camphor, in two or three instances, has disagreed with the patient, though it relieved the pain. In these cases it produced most distressing feelings: as headach and delirium; but they soon disappeared upon desisting from the use of it—it has a decided advantage over opium; in many instances it can be given where the opium is altogether improper, either from the state of the pulse, or idiosyncrasy; besides, it more certainly gives relief. I think, however, the relief is not quite so permanent as that procured by opium; and therefore, we are sometimes obliged to repeat it more frequently. Should the camphor fail to give relief, or constitutional peculiarity render it improper, we must give the opium; provided, there be no circumstance of the system, as fever, which would make it inadmissible. I have in a few instances been obliged to let blood, from the high action of the arterial system, before I could venture upon the use of opium; but these cases are rare, though of high consequence in practice. I have, however, given the camphor, where I dared not venture upon the opium; and this is important to be known, as preparatory bleeding always excites alarm.

515. We often find patients who dare not use opium in any of its common forms, in consequence of its disagreeable after effects; such as severe headach, and distressing sickness of stomach. These consequences are very often entirely prevent-

ed by mixing the laudanum with vinegar instead of water; or using the acetated tincture of opium, or black drop. When used, it should be in such doses as will quickly make an impression upon the system—I therefore always begin with a dose of fifty or sixty drops, and repeat it every half hour or hour, until relief is procured; if the black drop, it should be given in half the quantities of the laudanum. If this plan be persisted in for a short time, it will certainly relieve the patient.

516. I have met with a few cases of a very distressing kind, which I have never seen noticed by any writer. It is a most severe, and constant pain at the very extremity of the sacrum and coccyx; it begins the instant the child is born; and continues with the most agonizing severity, until overcome by the rapid, and liberal use of camphor, and opium. It is declared by the patient, to be infinitely more insupportable than any pains of labour; for it is as intense, as unceasing.

517. The first case of this kind I met with, occasioned me no little anxiety and perplexity, from its novelty and severity. It was the case of a young lady with her first child—it began most severely, the instant the child was born; and its intensity was such, as to make me abandon the delivery of the after birth, to attempt the relief of my sorely afflicted patient. I at first looked upon it, as only a protracted after pain, which I had not expected to encounter with a first child. I immediately gave a large dose of laudanum, and repeated it in fifteen minutes—at the end of the second quarter of an hour, as there was no abatement of the suffering, I again gave the laudanum—this procured no relief, in half an hour more; though, in the three doses, more than two hundred drops of this medicine were given, in the course of half an hour. I was obliged now to suspend the repetition of the laudanum, from a fear of an excess in its exhibition; but, to amuse the patient, I gave her a few drops at a time, disguised by a little of the compound spirit of lavender, until an hour had passed. By this time the patient thought herself a little easier, but still suffering very severely—I now ventured upon another full dose of laudanum, and sat down to deliver the placenta: this was readily done, as it was found lying loose in the vagina; but its expulsion procured no

abatement in her sufferings—in a word, nearly five hundred drops of laudanum were administered, before complete relief was obtained. After she became easy, she had no subsequent return of this pain; nor did she suffer in the least, from the liberal use of so much laudanum, in so short a period.

518. On the termination of her next labour, as she had most anxiously and fearfully anticipated, the same violent distress assailed her. I instantly gave her, at one dose, one hundred and twenty drops of laudanum; and this was repeated, in twenty minutes—in the meantime, the placenta was spontaneously discharged. This second dose afforded no relief; and I was then induced to administer the laudanum at short intervals, which, as before, eventually overcame the pain—as on the former occasion, she suffered no return of this pain, after it had once been subdued.

519. On her third confinement, I was again distressed to find a recurrence of this terrible agony. I had, however, from my former experience in her case, anticipated this event, and had at hand the following julep:

R. Gum Camph. ℥ii.
 Sp. vin. rect. q. s. f. pulv.—Add
 Pulv. G. Arab. ℥iii.
 Tinct. opii acetat. ℥iiss.
 Ol. Juniperi. gut. xx.
 Sacch. alb. q. s.
 Aq. font. ℥vi.—M.

Of this a large table spoonful was given about fifteen minutes before I expected the child to be born, by way of making some impression before the pain should come on. The child was born rather within the period I had calculated; and, as on the two former occasions, the pain commenced the instant it was in the world—another spoonful of the julep was immediately given, and this was followed by another in fifteen minutes more, which now had decidedly abated the severity of the pain; and I had the satisfaction of seeing it entirely conquered, in an hour from its commencement; a period less by one-half than on the former occasions. The placenta came away without trouble, as it had always done before. I thought it evident,

that the combination of camphor with the opium was highly beneficial; and, perhaps, they were aided by the oil of juniper, which I had frequently found very useful in controlling after pains. On her fourth delivery, she was managed precisely as above related, and with the same happy effects.

520. The second case which fell under my notice, as well as the third, were treated as above stated, with the camphor julep; and with the same happy results. Can this pain be considered as a modification of after pains? I am disposed to think not; as its commencement is too sudden, and it is too persevering; besides, after this pain has ceased, the part no longer becomes the seat of pain, should any follow. That strange variations in the seat of after pains, occasionally take place, I have witnessed; but in all the aberrations I have observed, the change of seat did not alter the character of the pains—they were of the alternate kind; and as regular, as if they were seated in the uterus. One of the most remarkable I remember to have met with, was where the after pains were located in the right knee; and this peculiarity in their seat, obtained with every child this lady bore.

521. I am of opinion, however, that much may be done before the labour is finished, and immediately after, to abate the severity, if not to prevent the occurrence of “after pains.” During labour; 1st. By rupturing the membranes whenever the mouth of the uterus is sufficiently dilated to permit the head to pass, that the tonic contraction, may immediately ensue; by this the following advantages result as regards the prevention of “after pains:”—by the absence of the waters, the uterus is reduced in size, in proportion to the quantity discharged; this gives greater strength to this organ, and enables it to contract with more force; and consequently, will more certainly diminish the size of the vessels exposed by the separation of the placenta; as these, by pouring out blood, give rise to these pains; again, it prevents the uterus from being too suddenly emptied; and thus inducing a state of atony in it—for, it must be remembered, that “after pains” are never more certain, nor ever more severe, than after a very quick labour. 2d. By permitting the uterus to finish the labour after the head is born:

in doing this, we have an assurance, that the tonic contraction has regularly followed; as the uterus becomes more and more empty; for, were this not the case, the alternate contractions would be feeble and transitory, as always happens, when the shoulders are about to be hurried through the external parts, and the uterus thus too suddenly emptied; the tonic contraction of course, in this case, is imperfect—and, consequently, the vessels are not pressed upon by this power, when exposed by the separation, and departure of the placenta; consequently, blood is freely poured into the cavity of the uterus; where coagulating, it obliges the uterus to throw it off, by repeated contractions. 3d. After the delivery of the child, we may do much, by not attempting the delivery of the placenta until we have insured the tonic contraction of the uterus, by frictions as before recommended, over the hypogastric region; and after its expulsion to repeat them, until the uterus seems to retire considerably within the pelvic cavity. Burton's success (though I should be but little disposed to follow his practice) in preventing "after pains" by the introduction of his hand to the fundus of the uterus, and kept there, until he found this organ contracting upon it, depended precisely upon the principle I have been endeavouring to establish; namely, promoting, as quickly, and as certainly as possible, the tonic contraction of the uterus.

SECT. V.—*The Regimen during the Month, &c.*

522. There is no vulgar error, with which I am acquainted, so replete with mischief as the one, which supposes the woman to be in a state of great debility after delivery; and that she requires of course the most nourishing, and the most stimulating things to overcome it—hence, the destructive use of ardent spirits, wine, cordials, spices, animal food, and broths, &c. &c. during the whole period of confinement. We cannot too seriously set our faces against such practices; we should give to the nurse the most explicit directions, as well as the most positive injunctions as regards the regimen of the patient, before we leave the room; and we should see as far as is in our power, that our instructions are rigidly carried into execution.

523. Should we have reason to suspect, or have positive evidence that they have been departed from, we should at once, without regard to her experience, or respectability, tax her with disobedience—for it must be recollected the whole responsibility lies with the physician; and if he do not support his instructions with proper firmness and dignity, and see them properly acted upon; if he pass in silence the improper conduct of the nurse, he will constantly, and evermore have his directions infringed, and his skill and experience, be they what they may, rendered nugatory. He, upon such occasions, may most profitably employ his ears, his nose, his eyes, and his fingers' ends, in detecting the backslidings of the nurse.

524. But to return to the regimen proper in the month; I desire that the patient *may not have* animal food; or broth from any animal substance; that she may take neither distilled nor fermented liquor; nor any stimulating tea “to dispel wind,” or “to allay after pains,” or to “promote the lochia.” I direct she should have gruel of oatmeal, tapioca, sago, panada, mush and milk, rice and milk, tea, coffee, or very thin chocolate. I permit them to season with sugar, a little nutmeg, or lemon-juice, any of the articles above enumerated, in which it would be proper to use them. I permit the use of toast-water, barley-water, molasses and water, or balm-tea as common drinks; or, what is very often extremely grateful to them, apple-water—that is, a roasted apple or more, well beaten with water, and afterwards strained. This diet is strictly to be observed until after the fifth day; or until the milk has been freely secreted, and is easily extracted—after this time, all things being right, she may be allowed the soft ends of four or five oysters, or a poached egg; a little chicken-water, beef-tea, or vegetable-soup may follow, until about the tenth day: then (nothing forbidding) she may indulge in a little ale, or porter and water at her dinner; and, if requested, a table spoonful of white wine to season her gruel, &c. This plan I persevere in until after the fifteenth day; at which time, she generally may take some animal substance, as broiled or boiled chickens; birds of almost any kind; a piece of beef-steak, mutton-chop, &c.

525. The child should be put to the breast, as soon as the mother is well rested from the fatigue of labour; this is an important direction; and should never, without very strong reasons, be neglected: the advantages of this early application, are; first, the child keeps the faculty (if we may so term it) of sucking, with which it is born: for if this direction be not attended to for several days, because, as they say, the mother has no milk, it will lose this faculty, and much trouble will be given to recall it—I have witnessed this consequence but too often; second, the child's mouth will by its gentle action upon the nipple, gradually stretch it, and accustom it to extension, before the breasts become tender, and swelled with milk; third, by the nipple being stimulated by the child's sucking, an earlier secretion of milk takes place; fourth, the milk will be drawn off, nearly as fast as formed; which will prevent the pain so constantly arising from its accumulation, as well as the swelling, which is almost sure to follow its formation; this swelling shortens the nipple, and renders the extraction of the milk more difficult; this increases the efforts of the child, by which means the external covering of this important little body becomes irritated, and sore nipples ensue, to the great misery of the mother; fifth, the early secreted milk possesses a purgative quality, by which the infant profits, by its assisting in carrying off the meconium.

526. It should be directed, that the room be constantly ventilated; the curtains, if there be any, should be always open; and, where we can command, we should forbid them altogether, in warm weather. They should never be drawn, because the woman sleeps, or with a view to protect her from a draught of air; for the woman can sleep without closed curtains; and can, by other contrivances, be guarded against a current of air. She should have a plentiful change of cloths, that the lochia may not become offensive; and, after the third day, she should be permitted to wash the parts with warm water—this last is a great comfort to a delicate woman; and should not, under frivolous pretences, be denied her.

527. On the third day, if the bowels have not been previously opened, the woman should take some mild purgative; cas-

tor oil is the best; but where this is disgusting, or should disagree, the calcined magnesia, the syrup of rhubarb, or a little senna tea, will answer extremely well. Should the "after pains" be very obstinate, and not yield to the common remedies, the castor oil will be found to be the most useful purgative; and has this very decided advantage over every other, perhaps, that, in cases of great pain, it can be administered with laudanum, if it be judged proper to exhibit it, without interrupting its operation, though it may delay it a little. A strict attention should also be paid to the state of the bladder—we should never forget to inquire whether the patient has made water; if she has not, we should immediately order such remedies as are best calculated to remove the difficulty—the most certain is the *sp. nitri. dul.* in tea spoonful doses, repeated every two hours, until relief be obtained; for, should this fail, it is more than probable no other diuretic will succeed: we are then under the necessity of employing the catheter; nor should we delay its employment too long. I have seen much misery, and perhaps danger, in permitting the bladder to be too long distended.

528. The following is the mode of using it—the patient should be placed at the side of the bed, which should be protected by a folded blanket being placed under her. The finger should be lubricated with a little sweet oil or lard, and the hand introduced under the bed-clothes, so as not to occasion the smallest exposure—the patient's knees must be drawn up, and the labia separated by the points of the fingers—search for the inferior edge of the symphysis pubis, under which the urethra immediately runs—press this part gently with the point of the finger, and the meatus urinarius will be, for the most part, readily discovered—when found, keep the extremity of the finger upon it; then, with the other hand guide the catheter along it until it reach the orifice, and is inserted into it; press it gently backwards and upwards, until it enter the bladder; and prevent the immediate issue of urine, by placing a finger upon its external extremity, until the vessel is handed, to receive it—this is to be so placed, as to prevent the escape of the urine into the bed—when all the water is discharged,

the instrument must be withdrawn. This operation must be repeated until the bladder regains its powers, and is capable of discharging its contents—it sometimes becomes necessary to do this twice or thrice a day; but in general once will do.*

SECT. VI.—*Of the Lochia.*

529. The discharge which takes place after delivery, is called the “Lochia”—it proceeds from the extremities of the exposed vessels, by the separation of the placenta; and will of course be in proportion to the size of that mass; the number and size of the vessels; and the degree of contraction of the uterus. Should the tonic contraction of the uterus be imperfectly performed, an hæmorrhage would be the consequence; but when more perfectly contracted, the discharge would not amount to flooding; but would yield the lochia. Much consequence is attached to this discharge; the good old gossips of almost every country, are of opinion, that the freer this is produced, the better; and are always better pleased with an abundant, than a sparing issue—it is proper therefore, before we proceed farther, that we determine the real nature of this evacuation.

* “If it were our only purpose, in such cases, to prevent the woman from suffering pain from the suppression of urine, it is true that the use of the catheter once a day ‘will generally do.’ But we have a much more important object in view,—to prevent the natural power of the bladder from being so far weakened by over-distention, that a very considerable time may elapse before the patient is able to pass her urine. We have known the use of the catheter necessary for many weeks, in consequence of the contractile power of the bladder having been lost, from the water not having at first been drawn off more than once in twenty-four hours. We differ, then, from our author, upon this point. The introduction of the catheter once a day, ought never to be considered sufficient.” (Lond. Med. & Phys. Journ. Aug. p. 148.)

The reviewer says, that he and I differ upon the subject of the catheter—but we certainly do not: on the contrary, we perfectly agree. My practice ever has been, to draw off the urine, whenever distention was evident; did this require three, or even four introductions of the catheter, in twenty-four hours. But more cases have occurred, where once a day was sufficient; nor have we ever witnessed a case, which required a continuance of this operation beyond a week. In Europe, this necessity is both more frequent, and more urgent; owing to the much greater frequency of contracted pelves, or tedious labours.

530. It seems that the uterus never contracts with so much force, after delivery, as to stop the mouths of all the exposed vessels; consequently, there must proceed from the extremities of such as are still open, though perhaps much reduced in size, a quantity of blood, proportionate to their capacities—and on the other hand, the quantity discharged, will be constantly diminishing in the exact ratio of reduction; it must therefore follow, there is no definite quantity to be evacuated, but will entirely depend upon the contingency, of the more or less perfect condition, of the tonic contraction of the uterus. This being true, it must also follow, that the quantity discharged will differ in each individual, and in the same individual, at each particular labour; consequently, there can be no rule upon the subject. The absolute use of this evacuation appears to be, to give the uterine vessels an opportunity to contract, by gradually relieving themselves of the engorgement, to which they have long been subject from pregnancy, by pouring a part of their contents into the cavity of the uterus; and that, so soon as this engorgement is relieved, all the purposes of the evacuation are answered; for, those vessels whose extremities open into the cavity of the uterus, cannot return the blood they contain into the circulation, as their anastomoses are destroyed, by their terminations being opened; they therefore part with it, and thus form the lochia; and they will do this, until the tonic contraction is so perfect, as to shut up their exposed extremities—Therefore, as a discharge, this evacuation is of no further use, than to relieve the over-distended vessels of the uterus, and thus indirectly promote its contraction—it may however injure by its excess, because, it may produce weakness; but cannot injure by its scantiness, when that is the effect of contraction, since this is an evidence of the most healthy condition of the uterus.

a.—Lochia Excessive.

531. As this discharge very often injures by its excess, and as that excess must necessarily result from a want of due contraction in the uterus, it follows as a consequence, that we

always render an important service, when we can increase the tonic powers of the uterus, and thus diminish the quantity of the lochia. I have for many years acted upon this principle, and have great reason to be satisfied with it. It is very unusual in my practice, to witness too abundant lochia; on the contrary, very little of this discharge is to be seen after the fifth day, and sometimes it is nearly over, sooner. I do not, however, say, that, in the cases just alluded to, there is an entire stoppage of the discharge; but that there is a very great abatement of it, both as regards quantity and intensity of colour.

532. The lochia, however, from various causes, will continue for a great length of time, nay, during the whole month, or even longer, to the manifest injury of the patient; in such cases, I have pretty uniformly made it a rule to interfere whenever it has continued beyond the tenth day, with any force. I have sometimes found this discharge kept up by a febrile condition of the system, produced perhaps by an improper consideration of the case by the friends of the patient, who could not imagine that any other cause than debility produced the discharge in question; accordingly, gave wine, bark, and cordials, with a view to arrest it, and thus perpetuated the evil they intended to cure. In such cases there are pretty regular febrile paroxysms, especially, towards evening; a quick full pulse, with considerable heat of skin—the tongue furred, the bowels oftentimes much confined; a feeble state of stomach, or a whimsical appetite; the sleep disturbed and not refreshing; pain in the back, and an occasional discharge of coagula. In treating this case, we have much prejudice to overcome—that fatal term debility, which has slain its thousands and its tens of thousands, is always employed against us; “the patient is so weak, doctor; she wants something to strengthen her,” is the unceasing cry of friends upon such occasions; and, though they will reluctantly submit to your directions, they will rarely coincide with you as to their propriety. We must not, however, give up our principles, to satisfy the crude notions of friends, upon a point so important to the welfare of the patient; we must prescribe agreeably to the opinion we

have formed of the nature of the case, after a due consideration of the symptoms, and condition of the vascular system.

533. In cases like these, we cannot expect to relieve the discharge, until we shall have subdued the febrile condition of the system; we are, therefore, to begin by taking a few ounces of blood, and opening the bowels freely, with any of the neutral salts, either alone, or combined with magnesia; by confining the patient strictly to a vegetable or milk diet, and the entire proscription of wine or any other liquor, and all stimulating teas, such as camomile, centaury, or mint. By forbidding all exercise, or even sitting up, in severe cases; by placing the patient upon a mattress, instead of a feather bed; by ordering the parts to be bathed with cool water, three or four times a day. After having bled and purged as just suggested, we may give from a grain and a half to two grains of the acetate of lead, every three or four hours. The following is the formula I generally employ for such purposes :

R. Sacch. Saturn. ℥ii.

Gum opii. gr. vi.

Conserv. Rosar. q. s.

M. f. pil. xxiv.

534. During the exhibition of the pills, the state of the bowels should be regarded; and should the febrile condition not be subdued by the evacuations already employed, we should again have recourse to the lancet. It will rarely happen that this state of circulation will not yield to this plan—indeed, the very omission of the improper articles which were before employed, will very much aid us in our endeavours. After the system is freed from fever, we shall find advantage in the employment of some gentle tonic; the elixir vitriol, in doses of fifteen or twenty drops, three or four times a day, in strong rose leaf tea, properly sweetened, is a very useful as well as grateful remedy. It must be observed, the acetate of lead may be suspended if it does not considerably check the discharge in the course of five or six days; and should always be intermitted when the vitriolic acid is given. Should the complaint not yield to this plan in a reasonable time, I have seen much advantage from injections per vaginam, of the acetate of lead

and water, a little warmed, and thrown up, three or four times a day—this should be made so as to have ten grains of the acetate to an ounce of water.

535. At other times, the system seems to be rather prostrated by the profusion, or the long continuance of the discharge; when this is the case, the elix. vitriol., as above directed, should be given freely; the tincture of rathanæ will also be found highly useful, as will sometimes the alum whey—the parts should be bathed as just directed; the patient should keep quiet, as above suggested; and the injections be had immediate recourse to—this plan will most generally prove quickly serviceable.

536. There is another condition of the lochia, which is not only very troublesome, but from its offensive smell extremely loathsome; this is where the coloured discharge has disappeared, but is succeeded by a profuse watery one, of a greenish colour; and from this circumstance is called by the old women the “Green water;” it is frequently so acrid as to excoriate, and always extremely offensive in smell. The woman is almost always much debilitated by this noisome evacuation; and, in some few cases I have seen, a kind of hectic disposition has supervened.

537. The system almost always in these cases requires the use of tonics—the decoction of bark and the vitriol should be freely given; and the patient allowed a generous diet, with either ale or porter, in moderate quantities at dinner. The parts should be frequently bathed with luke-warm water; and injections of strong camomile tea, in which a piece of quicklime has been slacked and permitted to settle, should be used per vaginam, four or five times a day—these injections, like all others I have directed for the vagina, should be a little warmed. This complaint, as far as I have observed, has always yielded to this plan of treatment.

538. It may be thought incumbent on me to say something on that condition of the lochia where this discharge is too sparing—but I have already said, I look upon this as a favourable sign; when it exists as a symptom of any other complaint, that complaint must alone be considered.

SECT. VII.—*Of the Attentions necessary to the Child.*

539. Hitherto we have been considering the attentions due the mother, together with some of the most common complaints attendant upon delivery; I shall now say a few words upon the demands of the child. Under this head I shall first direct its washing; 2d, dressing of its navel; 3d, the medicines proper to purge the meconium; 4th, its food.

540. The child's body, when first born, is almost always covered with a tenacious unctuous substance, which is rather troublesome to remove. It has been analyzed by Vauquelin and Buniva, and found most to resemble fat—they have not discovered any thing which readily unites with it. It is, however, found, that hog's lard answers better than any thing else that we know of, to detach it from the skin. When it is well incorporated with this substance, it can be removed by strong warm soap-suds, and a piece of flannel or sponge. It should be carefully taken off at the first washing, as it sometimes encrusts, and excoriates the skin if it be neglected. The child, during this process, should not be unnecessarily exposed—if it be cold weather, it should always be done near the fire; and it should be carefully dried after the washing. Many nurses have a preposterous, and, as I believe, an injurious practice of using brandy or some other liquor, when they wash the child; and especially, to wash the head—this practice should be forbidden, as I am persuaded it has been oftentimes greatly injurious to the infant. After washing, the next thing to be attended to is

SECT. VIII.—*The Dressing of the Navel.*

541. Much ceremony was formerly observed in the performance of this office; but it has now become a process of great simplicity, among the more enlightened part of the community. It would be idle to enter into all the details suggested by ignorance, or craft, for the due performance of navel dressing. A variety of medicaments were, and in some places still are, in use for this purpose; all which, to say the least of them,

are entirely unnecessary. The only necessity for applying any thing to this part is, to prevent the dead navel-string, from coming in contact with the skin of the child; it would therefore matter not, as regards the cord itself, if it were not touched by any dressing. Dress it as we may, it will always separate at the umbilicus; and our whole care should be to prevent this putrefying mass, from excoriating the skin. Though the dressing of the navel is not strictly the accoucheur's province, still it may be required of him; and he must not be ignorant upon a subject, to which the world at large, attaches so much consequence, however lightly he himself may think of it.

542. All that is necessary, is, to pass the remaining portion of the cord through a hole in the centre of a piece of linen rag, seven or eight inches in length, and about two and a half broad. After it is passed through, it must be enveloped entirely by a bandage of ten inches long, and rather less than an inch broad, by passing it round, its whole length. The pierced piece of rag is placed lengthwise, as regards the child's body; on this the wrapped up cord is laid, with its extremity towards the breast of the child; the inferior portion of the first rag is then folded over it, and the whole secured by the belly-band; after this, the child is dressed as fancy directs, or as circumstances may force.

SECT. IX.—*Purging off the Meconium, &c.*

543. The propriety of purging off the meconium is no longer doubted; especially, in hot climates. It has been found very much to lessen the mortality among the new-born children of the West Indies, and other similar climates, by preventing that very common, and but too often fatal disease, called the jaw-fall, or the trismus nascentium. This practice should never be neglected, even in this country. It might be difficult to say exactly, of what the meconium is composed; but it would seem certain, that bile is one of its constituent parts, agreeably to the analysis of Vauquelin; and the other, in part, is, the recrement of the secretion from the mucous membrane of the intestines; the finer parts having been absorbed. This substance is some-

times of very considerable tenacity, and of a dark bottle green; this colour is derived from the admixture of bile.

544. For the purpose of carrying off this substance, it is found that a little molasses and warm water is generally sufficient; I always order two or three tea spoonsfull to be given at once, and repeated from time to time, if the previous quantity be not sufficient—this rarely fails; especially, when aided by the early secretion of the mother's milk.* Should this fail, the child becomes fretful, and uneasy; and oftentimes, will moan, or cry loudly; become sleepy; frequently start; and by its complainings, show itself to be ill at ease, during this period. When we find this to be the case, we should inquire into the state of the evacuations; and if these have not been sufficiently liberal, which is easily determined by their continuing to be tenacious and green, we should direct a small tea spoonful of warm castor oil; this must be repeated, should it not operate in a couple of hours; or a mild injection of warm milk and water, with some molasses dissolved in it, will answer very well to aid the action of the oil.

545. I must earnestly protest against the use of any acrid purgative, for the purpose of carrying off the meconium—nurses and midwives are too apt to employ them, when this part of *our* duty is left to their discretion. I therefore have always made it a rule to point out the remedy to be employed, without permitting them the smallest latitude. Their ignorance frequently betrays them into indiscretions; and this sometimes to the absolute injury of the child. I have too frequently witnessed this, not to feel it a duty most pointedly to inveigh against it.

546. Dr. Buchan, in his pleasant, and useful little work, "Advice to Mothers," relates an anecdote so much in point, that I am induced to quote it at length: "I was once sent for by an intimate friend, to look at a new-born infant, who appeared to be in great agony. I soon discovered the complaint was the belly-ache, caused by some injudicious purgative. As the

* This is an additional argument, for the early application of the child to the breast; since, the first secretion of the breasts is of a purgative quality. This product is called "Colostrum."

midwife was present, I remonstrated with her on the rashness of thus tampering with an infant's delicate constitution. She replied, in a tone of self sufficiency and surprise, 'Good God! Doctor, I only gave the proper medicine to carry away the *economy*.' I should have smiled at her affectation of medical cant," adds the Doctor, "and her ridiculous attempt to catch the word *meconium*, had not the serious mischief she had done repressed every emotion of laughter." A medical friend told me some time since, that he was called to a newly born infant, which was dying in great agony, from a dose of aloes exhibited by the midwife.

547. There is oftentimes much mischief arising from over-purging newly-born children; they, therefore, not only require very mild remedies, but proper doses of such remedies—and there is one rule by which these exhibitions should always be governed; namely, that so soon as there is a change in the colour of the evacuations, all purgative medicines should instantly be withheld.

SECT. X.—*Of the Suppression of Urine.*

548. It very frequently happens with newly-born children, that they do not pass their urine for many hours after birth; or so sparingly, as to afford little or no relief; this creates a great deal of distress, and, if not relieved by proper means, will sometimes occasion death. A very remarkable instance of this kind fell under the notice of my friend Dr. Parish, and myself, which I will give in detail. Mrs. — was delivered of a healthy baby on the 15th June, 1822. On the 20th, in the evening, the child showed uneasiness, and on the 21st, it cried violently, and continued to be much pained until the 25th. A variety of simple means were ineffectually used for the discharge of the urine, which had been either very sparing, or entirely suppressed, most probably from the 20th. On the morning of the 25th, at 10 o'clock, we found the abdomen very much distended, even to the scrobiculus cordis; the skin shining, and the superficial veins very much enlarged. The child had several very sparing stools, of a very dark green colour: two tea spoonsfull

of castor-oil were given in the course of the morning. At half past one o'clock, P. M., Dr. Parish introduced a small flexible catheter, and drew off at one time eighteen ounces and an half of a straw-coloured urine. At 7 o'clock of the same day, the child appeared perfectly relieved; it slept soundly, and took nourishment freely; two more tea spoonsfull of castor oil had been given since the visit at noon, but without moving the bowels, nor did any water pass—as the child was easy, it was permitted to rest without disturbance.

549. From this time until it died, (on the 28th) the water was regularly drawn off by the catheter; the child however, gradually declined from our first visit; and its mouth became very sore; leave was not obtained to examine it.

550. I have recorded this case for its great practical importance. I have seen several instances similar in their general appearance and termination; which give me strong reason to believe, they may have died of suppression of urine, though I was assured the children had regularly passed water—such was the statement for a while, in the case just related; and, perhaps, there may have been a small discharge, as always happens when the bladder becomes excessively distended. This often takes place in the adult, from the same cause; it is therefore a good rule to inquire into the state of the bladder, in all the complaints of very young children; and we must not be too easily satisfied with the reports of the nurse upon this subject—I now make it my business, whenever I have any suspicion that the urine is not freely evacuated, to examine the abdomen of the child; especially, if it be reported as swelled—I carefully examine the region of the bladder, with a view to detect any distention of it, that I may take measures accordingly. I am disposed to believe, had the catheter been introduced twenty-four hours sooner, nay, perhaps twelve, the infant, whose case is related above, might probably have been saved—but as there was a constant assurance that water passed, there was no suspicion of the state of the bladder.*

* “The introduction of the catheter is spoken of, in the case of a child ten years old. We never have had occasion to employ the instrument at so early an

551. I suggest, as a matter of probability, that the cases I have witnessed of death in very young children, where the abdomen has been much swoln; the superficial veins passing over it much distended, and very conspicuous, were similar affections of the bladder, though no such suspicion was entertained at the time. How far a distended belly, (indeed almost to transparency,) with greatly enlarged veins, may serve to distinguish this state of the urinary organs in very young children, must be left to future observation. I felt it a duty to express this impression, with a hope it might awaken attention in those, whose province it is, to witness many cases of sickness; especially, in very young children.

SECT. XI.—*Of Food for the Child.*

552. The mother very rarely has her breasts furnished with milk, at the time of the birth of the child; for the most part, there is an interval of several days, before it is provided in sufficient quantity, to sustain the infant—it is therefore constantly supposed the child would suffer severely, did it not receive something or other into its stomach, until the mother can *provide* for it. Accordingly, an ample bowl is prepared by the humane nurse; and the stomach of the child is crammed to regurgitation, with a tenacious paste, called pap, or panada. This is repeated with such mischievous industry, as to throw the poor infant into violent agony; unless its stomach revolts at the unmerciful invasion, and rejects it by a violent effort, and thus averts the impending mischief. Nature seems to have endowed the stomachs of children with a discriminating power upon such occasions; and most happy it is for them that she

age, and fear that its employment is more easily described on paper than carried into execution in practice, particularly in the male." (Lond. Med. & Phys. Journ. Aug. p. 149.)

In a case similar to the one which gave rise to the above observation, it may be asked, what other resource does our art afford? I have not declared, nor even insinuated, that the catheter should be used upon slight occasions: but where the suppression is confirmed; and where every usual expedient has been resorted to, and failed, should we suffer our patient to die, because the introduction of the catheter is difficult?

has been thus kind, for, were it otherwise, many would die in a few hours after birth, from absolute repletion.

553. It has often appeared to me, that these kind nurses have but one rule, by which they regulate the feeding of newly-born children; which is, to thrust food down their throats until no more can enter the stomach, or till it literally flows from their mouths; they then stop par force—but the delightful task of cramming, is soon again resumed; especially, if the poor babe cry; it is then imagined it is again hungry, and again its poor powers of digestion are unmercifully taxed. This addition of food, to the great surprise of the anxious nurse, does not quiet its complainings; and these are now attributed to “wind;” and the unfortunate child is next obliged to swallow some stimulating tea, or liquor, until further distention, and perhaps intoxication, are added to the already almost bursting stomach. It is then rudely jolted on the knee, until a kind vomiting comes to its relief; or until the bowels, rapidly and profusely discharge their contents.

554. Let us for a moment consider how small the stomach of a newly-born child must be, and how little will put it upon an uneasy stretch—being passive, during the whole period of utero-gestation, and consequently contracted to its minimum size, it is obliged to submit suddenly to be distended to almost giving way, from the mistaken zeal of its temporary guardian. Can it then be a matter of surprise, that so many children are subject to pain, spasms, convulsions, and even death, a few days after they are born?

555. What is the proper food for a child at this period?—or should it have any? I have no objection to nourishment from time to time, meted in proper quantities, and composed of proper materials. It must be recollected, that the nearer we follow nature in such cases, the nearer we approach what is right; and she provides, as early as circumstances will permit, milk, and milk only—so, on our parts, we can imitate her providence sufficiently to prevent mischief; and milk alone should be given them, until the mother be capable of furnishing supplies adequate to the demand. The article I am in the habit of recommending, is, cow’s milk diluted with one third water,

together with the addition of a little loaf sugar. Of this, the youngest child may take a few tea spoonsfull at a time, which may be repeated as occasion may require.

556. The vulgar judge of the nutritious quality of a substance, principally by its density: hence, they set their faces against the food just recommended, and insist upon improving it, by the addition of some farinaceous article; but by which addition, it is sure to be deteriorated: for almost all children who partake of this *improved* substance, are sure to be afflicted with green and watery stools, if not with a full crop of aphthæ. But, so soon as the mother is able to supply the demands of her infant, it should be confined to the product of her breasts; and to that alone; *cæteris paribus*.

557. I cannot too strongly condemn many of the preparations in use as nourishment for young children; such as crackers and water boiled together, and sweetened; or bread, water, and sugar; than which, nothing can be more ungenial to the infant stomach—they are masses which begin to ferment the instant they are received into the stomach, and but too quickly declare how ill suited they are to it—green and watery stools, amounting in fact to diarrhœa, colic, sour eructations, or throwing up their milk strongly curdled, are almost the constant result of their employment. Besides, I must object upon general principles, to the use of any substance which needs to be made so warm as to require being tempered for the child's mouth, by first entering that of the nurse. This is a horrible practice, and cannot be too severely reprobated. The child is thus obliged to take into its ill-confirmed stomach, food not only improper in itself, but which has the addition of a rank saliva from a filthy mouth, studded perhaps with a score of carious teeth.

558. Much care should be taken in warming the food of the child, lest it be overheated, and its mouth made to pay the forfeit of the nurse's carelessness, in not having it properly tempered; but this can be done without any previous mouth-ing.

SECT. XII.—*Aphthæ.*

559. This complaint is generally called the baby's sore mouth; it consists of a greater, or less number, of white pustules on the inside of the mouth. It generally begins on the inner part of the lower lip, or corners of the mouth, and resembles a small coagulum of milk; from this point it sometimes very rapidly spreads itself over the inside of the cheeks, tongue, and gums. When this efflorescence is extensive, the child suffers very much, and is frequently embarrassed in its sucking; it cries, and evidently discovers much pain; it is very restless and thirsty, as it evinces by frequent stirrings, and a disposition to be continued at the breast. The eruption in its mildest form is very white, and looks as if a stratum of milk coagulum were spread over the mouth—it sometimes confines itself to the centre of the cheeks, at others to the lower lip, or one side of the tongue. In its severer forms, the appearance of the eruption is of a dark brownish colour, or extremely red; but both are evidently grades of the same affection, changed either by mismanagement, constitution, or force of the remote cause.

560. This affection is one of a symptomatic kind—rarely, perhaps never, idiopathic.* It is very frequently preceded by

* Some facts have lately shaken my faith, that this complaint is always symptomatic—viz.

1. I have recently seen two cases of this affection, where the stomach and bowels were in the most perfect order before the eruption, but became a little disturbed during the progress of the disease.

2. This disease has very often been removed by topical applications alone, where the efflorescence has been very considerable, and where there was no remedy of any kind addressed to the stomach and bowels.

3. We do not uniformly see this complaint, where there has existed great disorder of both stomach and bowels, and these of a permanent kind.

4. However the stomach and bowels may be disturbed by acidity or other inconvenience; or however long these may continue, if the child has had this complaint, it is not renewed, though the individual is not exempt from a second attack, as after measles or small pox; for in certain chronic affections, they may be visited by aphthæ.

5. This affection is sometimes epidemic; for Dr. Good informs us, that “not only all the children of the same family, however cautiously separated from one

a deranged condition of the alimentary canal, and by some disturbance of the stomach itself. The brain also shows signs of participating in this complaint, as there is almost always an unusual inclination to sleep, though frequently disturbed by some internal irritation, perhaps of the bowels themselves. This disposition to sleep is so notorious with nurses, that they will frequently tell you "the child is sleeping for a sore mouth." The bowels are frequently teased by watery acrid stools of a greenish colour; their discharge is often attended with the eruption of much wind, and, to judge from the noise, it would be supposed there was a very large discharge of fæces, but, upon examination, such is not found to be the case.

561. The alvine discharges are frequently so acrid as to very severely excoriate the verge of the anus, and nates; especially, when due attention is not paid to cleanliness, or to the frequent changing of the diapers. The stomach is also much deranged sometimes; vomiting the milk as soon almost as it is received into the stomach, in the form of a dense curd, mixed with mucus, and a porraceous substance. If the child does not vomit, it is constantly discharging by eructations, a gas of a very sour smell. The child, when the disease is severe, quickly becomes debilitated, and rapidly emaciates; it is harassed almost constantly by severe colics, and profuse diarrhœa; its stomach will scarcely retain the little it can swallow; and the œsophagus sometimes becomes so loaded with aphthæ, that it can no longer transmit the little which is reluctantly admitted into the mouth; and the child dies, either from the exhaustion consequent upon the profuseness of the discharges from its bowels, or from inanition.

another, but many of those of the same neighbourhood, have been known at times to suffer simultaneously." (Vol. II. p. 391.)

6. This disease is almost always ushered in by some cerebral affection; as great drowsiness, or watchfulness—the first, is by far the most common.

7. Other portions of mucous membranes are liable to the same kind of eruption, without the condition of the stomach or bowels being instrumental in its production; for I have seen it most plentiful within the labia pudendi, as well as upon the internal face of the prepuce. (See Treatise on the Phys. & Med. Treatment of Children, p. 287.)

562. It is a popular belief, that this aphthous efflorescence passes from the mouth, through the whole tract of the alimentary canal, to the very termination of the rectum; and the excoriation at this part is offered in evidence. Whether this be true or not, I do not know; for I am not in possession of facts from dissection which decide the point. I once examined a body which certainly died from aphthæ; the appearances of which would by no means tend to confirm this common belief. A child, on the tenth day after birth, was observed to have a number of white spots upon several different portions of its mouth, which rapidly spread over its whole surface. It had the usual premonitory, and accompanying symptoms, which increased daily in severity, in spite of every effort to oppose them. It was the feeble weakly child, of a consumptive mother. Its sufferings were very great, though under some control from laudanum, so long as it could be taken by the mouth, or retained by injections—coat after coat of aphthæ was thrown off; and each new crop appeared to be more abundant, and less controllable; at the end of two weeks of severe suffering, not a drop of the thinnest fluid could be swallowed. Injections of bark, and mutton tea, in conformity with popular opinion, were resorted to, but in vain; the child in a few days more died from absolute starvation; or at least the catastrophe was certainly hurried by the impossibility of receiving nourishment.

563. I examined the body after death—the whole tract of the œsophagus was literally blocked up with an aphthous incrustation, to the valve of the cardia; and here it stopped. The inner coat of the stomach bore some marks of inflammation, as did several portions of the intestines; but not a trace of aphthæ could be discovered below the place just mentioned. This case would, therefore, create a doubt, whether this affection besieges any other parts than those just stated; namely, the mouth, posterior fauces, and the œsophagus to the valve of the cardia; since, perhaps none could have been of greater severity; with me, it is a solitary case; and should not be received as conclusive. The excoriations about the anus can certainly be accounted for, without the presence of aphthæ to produce them; the stools are always extremely acrid in bad cases,

and the parts over which they constantly pass, very delicate at such a tender age, and easily excited to inflammation.

564. This affection is not confined to early infancy; it shows itself in the more advanced periods of childhood, and from that, to any period of human life—it very often attends the last stages of long protracted chronic diseases; especially, those which have wasting discharges of any kind; such as phthisis pulmonalis, dysentery, or diarrhœa, and when it does, it is almost sure to be a fatal harbinger.

565. Weakly children, and especially those born before their full period, are more liable to this complaint than robust children, and those who tarried to their full time in the uterus—the children of weakly women, particularly those who make bad nurses from scarcity of milk, or from its not being of a sufficiently nutritious quality, are more disposed to this affection than the children of hale women, who have plenty of nourishment of good quality. Children fed much upon farinaceous substances (555, 556,) are especially exposed to this disease; particularly, when their food is sweetened with brown sugar or molasses.

566. The treatment of this disease should always be commenced by a regard to the stomach and bowels; there is, usually, a superabundance of acid, which should be destroyed by the use of absorbents. We are almost certain of finding whatever evacuations there may be, of a green colour; and when this is the case, small doses of magnesia should be given, until the bowels are purged; and this may be repeated *pro re nata*—should the bowels however be urged to frequent dejections of a sparing watery kind; and especially, if attended with pain, or straining, the following formula I have long adopted, with entire success.

R. Magnes. alb. ust. gr. xij.
Tinct. Theb. gut. iij.
Sacch. alb. q. s.
Aq. font. ℥j. —M.

Of this a tea spoonful is to be given every two hours until the bowels are more tranquil. Or if the discharges be very frequent and green, we may substitute a drachm of prepared chalk

for the magnesia; or if there be no fear that the diarrhœa will weaken too much, a scruple of the prepared chalk may be added to the twelve grains of the magnesia; by this combination, we insure the destruction of the acid, and prevent the lax from being too soon checked. I have very often found a great advantage from equal parts of lime water and milk, where green stools continued, but no diarrhœa—a tea spoonful of each may be given four or five times a day.

567. When the disease has proved obstinate, and the bowels are much irritated by frequent small discharges; and especially, if there be any streaks of blood, I have found the most decided advantage from a tea spoonful of the oil of butter given three or four times a day. The oil of butter is prepared by putting a lump of perfectly sweet butter into a tea-cup, and pouring on it a quantity of boiling water, and agitating it well with a tea spoon that it may be deprived of its salt—the oil is then skimmed off as it is wanted; should it not be sufficiently fluid, pour off the cold water each time, and add fresh warm water.

568. During the continuance of this complaint, the child should be confined to its mother's milk when practicable, and the mother should at this time avoid such diet as would become ascendent on the stomach—most of the common vegetables should be avoided; though she may indulge freely in boiled rice with her meats, at dinner—she should abstain from all kinds of liquors; especially fermented. She may drink freely of rice water, toast water, or milk and water.

569. I have constantly found in this complaint, that local applications, when properly managed, are of the utmost consequence; I therefore direct their immediate use. The best I have tried is, equal parts of borax (borat of soda) and loaf sugar, rubbed together until very fine—a small quantity of this is to be thrown into the mouth in its dry form, and repeated every two or three hours. This mixture is quickly dissolved by the saliva, and carried over the whole of the mouth. We should be very positive in forbidding the mouth to be rubbed with any thing whatever, under the pretence of cleansing it. The cruel, and mischievous practice, of scouring the mouth

with a piece of flannel, cannot be too strongly reprobated. I have seen a poor little creature in agony, after it had undergone this rude discipline from the heavy hand of an unmerciful nurse; nay, I have seen it bleed, even freely, from the barbarous treatment it received under the specious pretence of doing good. I am persuaded, from many years experience, that the mouth requires no other washing or cleansing, but that procured from the application of the borax, and the frequent draughts of the mother's milk.

570. I do not however continue the borax should the efflorescence become discoloured; the Armenian bole, with sugar, in fine powder, is then to be employed, as has been directed for the borax; or should this fail to give speedy relief, and particularly if the mouth be very red, livid, or ulcerated, recourse must be had to a weak decoction of the bark. Half an ounce of powdered bark is to be stewed in half a pint of water, for twenty, or five-and-twenty minutes, over a slow fire, and then permitted to settle; about the third of a tea spoonful of this, is to be put into the child's mouth every hour or two—its taste not being agreeable, the child will not be much disposed to swallow it; it will therefore be carried over the whole mouth—I have often seen this attended with most marked advantage.

571. During the continuance of this complaint, the most scrupulous attention should be paid to cleanliness—the child's nates should be washed with flaxseed tea, after every evacuation; and the excoriated parts constantly defended by a coat of fine hog's lard, or the best quality of soft pomatum. The same diaper should not be used twice without washing.

SECT. XIII.—*Of Colic.*

572. Owing to the improper feeding, or the peculiar quality of the mother's milk, or perhaps in some instances, the particular constitution of the child, it becomes liable to attacks of severe pain in the bowels, which continue for several hours. These colics are of two kinds; first; where they attack at any time of day, without evident cause; and, second; where they observe a periodical movement.

573. In the first, the child may be seized at any time of the day without our being able to trace the cause. This kind generally attacks children of feeble constitutions; and though the mother may have plenty of milk, and the child may suck freely, yet it does not thrive; or it may attack children situated the very reverse of the one just described—or where the child has not sufficient nourishment from the mother; or this is of bad quality—to supply the first defect, the stomach is overloaded with crude, or improper diet, which not only fails to afford it a healthy nourishment, but quickly turns acid, to the decided injury of the child. Perhaps diarrhœa, with green stools, is produced; or it may not have too many evacuations, but those which it has are evidently the remains of ill-digested food. When pain arises from the use of improper food, the child almost always becomes uneasy as soon as it swallows it; and if it arise from ill-elaborated milk, it complains so soon as it is done sucking. Its abdomen becomes swoln and tense, and it writhes its body as if in the utmost agony—it sometimes becomes suddenly relieved by eructing a quantity of wind; or this wind passes downwards, carrying with it a very small portion of fæces.

574. It is obvious, that we must change the diet of the child, or alter the mother's milk, if we expect to relieve this complaint—I have already said enough upon the subject of diet for young children, and need not repeat it here—when we are satisfied it is from the quality of the food that this complaint arises, it would be advisable, if practicable, to confine the child altogether to the milk of the mother; and to destroy acidity by small doses of magnesia; especially, if the child be rather costive. A small tea spoonful of warm sweet oil, three or four times a day, is a remedy very often of great value. Should it depend upon the mother, an attempt should be made to alter the qualities of the milk by an almost total change of diet. If this does not succeed, we are obliged to have recourse to temporary remedies, rather than witness the continued sufferings of the child. This complaint most frequently commences in the month; but when it may cease, it is difficult to say.

575. I have sometimes been so fortunate as to succeed com-

pletely in curing this complaint, by the plan just suggested ; but it requires strict attention to do so, even if it be continued for some time most perseveringly. Care should be taken, that the child should not remain wet a long time after its evacuations, from an ill-founded opinion, that it makes them hardy, to use them to cold. By this management the feet and legs become chilled, and the bowels are made to suffer in consequence, a double portion of torture. However, during the trial of changing the food, we must temporize, and administer immediate relief to the sufferer ; for this purpose, I have been in the habit of employing the following mixture, with the most decided advantage ; it rarely fails to give instant relief, and sometimes effects an entire cure :

R. Magnes. alb. ust. ℥i.
Tinct. Fœtid. gut. lx.
—— Theb. gut. xx.
Aq. font. ℥i. — M.

Of this, twenty drops are to be given when the child is in pain, and, if not relieved in half an hour, ten drops more must be given. This dose is calculated for a child from two weeks old, to a month ; if it be older, a few more drops must be given ; and as the child advances in age, or becomes accustomed to its use, the proportions of the ingredients must be a little increased. I must, however, caution against too rapid an increase of dose, as this is by no means necessary, and it wantonly subjects the child to the use of a medicine, which should only be given when pain demands its exhibition.

576. The other form under which we are to consider this complaint is, where it becomes distinctly periodical. It very often commences with the erratic form ; and after continuing in this uncertain state, settles down to a period, which commonly is, from four, to six o'clock in the afternoon. In general, this form does not appear to be injurious to the health of the child—indeed, it seems that the child even thrives with it, so that one might almost say, it is “cry and be fat.” Certain it is, that some of the fattest and healthiest looking children are troubled with it. I have never found the diet of either the mother or child to have much effect upon this form of the

complaint; and in this it differs materially from the first. It would seem to depend upon some constitutional peculiarity, over which, we have but a temporary control, as it very frequently will stop of itself, as soon as the child is three months old; hence the old women say, the child has "the three month belly-ache."

577. The child who is subject to this complaint is usually habitually costive; but I have never derived any advantage from the exhibition of purgative medicines; indeed, I think this in general, to be a bad plan. When the constipation is more than usually protracted, I order a little opening medicine of a mild kind, such as sweet oil, the castor oil, or syrup of rhubarb; or manna, as sweetening in its food, if the child feed—or I direct an injection of molasses and water, or the introduction of a suppository of soap.

578. For immediate relief, the mixture just prescribed should be given; only observing, it should be administered the instant the paroxysm is about to commence. Considering this as a true periodical disease, I have given a decoction of the bark for it, with the happiest effect in several instances; but it has not always succeeded. This complaint should excite but little apprehension; for I believe it is never dangerous; and is almost sure to wear itself out, after a certain period.

579. I will relate a curious instance of the influence of an aching tooth upon the secretion of milk, and its indirect agency in producing the "belly-ache" of the first form. Mrs. —, was delivered of a fine, healthy-looking boy, which appeared to do perfectly well for the first two weeks after birth; at this time it became uneasy, and frequently cried—the usual domestic remedies were employed from time to time for its relief, without the smallest benefit—the complaint seemed to increase every day; the pain was more severe, and longer continued; the stomach and bowels became affected; the one with sour vomitings, the other by frequently discharging green stools. The child could obtain no relief but from laudanum, and this I was obliged to give in large and constantly increasing doses; the emaciation was so great, as to render the child lighter at three months old, than when first born—in this situation did things

continue, without much aggravation, or amendment, until the child was five months old. By this time it was (without a figure) nothing but skin and bones.*

580. At one of my visits, I observed the mother apply her hand very suddenly to her face, and press it forcibly as if in pain from a tooth. I inquired of her what she ailed: she informed me, she was very much tormented, both by day and by night, by toothach, and had been for some time before the child was born, and ever since. I immediately declared my opinion that this was the cause of the affliction of her child; the constant pain she was enduring, and the great loss of sleep, so affected her stomach, and indirectly the breasts, that they could not yield a healthy nourishment; and advised her to send immediately for a dentist, and have the tooth extracted. This

* The following remarks are made upon the above case, by the reviewer of this work, in the Lond. Med. & Phys. Journ. Aug. 1825, p. 149.

"In a work principally designed for the use of students, the recommendation for giving 'large and constantly increasing doses of laudanum' to a child of three weeks old, should be much more definite. If we oppose 'sour vomitings and green stools' by the long continued use of laudanum, we must expect to have 'the emaciation great,' 'the child lighter,' and in some time 'nothing but skin and bones.' From the imperfect relation which is presented in this case, we are most decidedly of opinion, that the practice employed was highly injudicious."

It may be proper to observe, that the case commented upon, was not related with a view to show the routine of practice; its design was to point out what I firmly believed to be, and still continue to think, a very extraordinary instance of sympathy, notwithstanding the gentleman doubts the relationship between the toothach of the mother and the belly-ache of the child. The fact is indubitable, that the belly-ache ceased almost immediately after the extraction of the tooth, and this without any change in the management of the case.

I must also protest against the forced conclusion, that "sour vomitings and green stools" were combated by laudanum—pain alone was intended to be remedied by it; and I would ask sincerely, for information, whether the gentleman can point out a better remedy? Absorbents were constantly used with the laudanum; but as was seen, they were unavailing. The whole class of remedies, both rational and empirical, were tried in vain—opium only gave relief.

No one is more averse from the too frequent use of laudanum, than myself; but I never allow my prejudices to withhold it, when necessity demands its use; and I have the satisfaction to know at this moment, that no injury was done to the child in the instance in question, as there is not at this moment a more healthy young man.

was accordingly done; and from that day the child began to recover, and in a short time was perfectly restored to health.

SECT. XIV.—*Ophthalmia.*

581. From about the fourth to the seventh or eighth day, or even longer, after delivery, we sometimes find the eyes of the child beginning to inflame; they are first observed to glue up in the morning, and quickly after the whole of the lids become swelled, especially, early in the morning, or until the eyelids become unclosed, and give issue to some purulent matter. The eyes themselves are soon found to partake of the inflammation of the lids, and to have a peculiar, fiery appearance—the child now keeps its eyes entirely closed, or closes them at the approach even of a weak light. After a plentiful secretion of pus, which generally happens after the third or fourth day, the lids during the night become pretty firmly attached to each other, in consequence of the discharge becoming inspissated; and firmly gluing them together. This permits a considerable accumulation of pus within, which very considerably distends the eyelids, especially, the upper; so much so, sometimes, as to make them even with the socket. Upon moistening the eyes with warm water, the lids are enabled to separate; this permits a considerable quantity of pus to discharge itself—the eyes now seem to swim in pus, and the dark parts of them can no longer be seen—the whole of the internal linings of the eyes, which become exposed upon separating the lids, is of a bright scarlet red; manifesting a degree of inflammation, which, if not soon interrupted, runs on to disorganization, and total blindness.

582. The remote cause of this complaint, is some foreign matter, the eyes acquire in transitu—this may be the matter of gonorrhœa, or leucorrhœa.

583. The mode of treating this disease, from either cause, is perhaps precisely the same; or, at least, we know nothing that more certainly controls the inflammation of gonorrhœa, than that of leucorrhœa; unless in desperate cases of the former, we might apply some mercurial preparation; for instance, a few

grains of calomel suspended in an ounce of gum Arabic solution,* and applied three or four times a day, in addition to the remedies we shall presently mention. But this is altogether hypothetical, and I beg it may only be received as a suggestion.

584. This complaint must be actively treated, if any good is to be derived from remedies; there is no time for temporizing; the most vigilant attention must be paid to the eyes, or they quickly perish. We should commence our plan by leeching—about three common sized leeches should be applied to each eye, (if both be affected;) the bleeding from the leeches should be encouraged for some time by the application of a soft bread and milk poultice, confined between the folds of a fine piece of rag. After the weeping from the leech wounds ceases, the eyes should be exposed to the air, in a very dark room; and should be kept cool by a very weak solution of the acetate of lead, in rose water, in the proportion of two grains of the former, to an ounce of the latter. This is best employed by washing the surface of the eyes frequently with a fine piece of linen rag, wet with the solution. The eyes should not be bandaged, as the heat does much mischief. Should the eyes betray a disposition to glue, notwithstanding the frequent moistening, they must be washed frequently, with the mucilage of the pith of sassafras. We should keep the bowels freely opened, or rather purged; for this purpose, I have found the following answer extremely well:

R Calom. ppt. gr. iv.

Magnes. alb. ust. gr. viij.

M. div. in viij.

One of these powders to be given morning and evening, mixed in a drop of any common syrup. Should this quantity not purge sufficiently, let another powder be given—should it operate too freely, give less.

585. If the inflammation be not abated by these means in the course of forty-eight hours, the leeching should be repeated;

* The quantity, I think, should not exceed three or four grains, to the ounce of mucilage. The mucilage of the pith of sassafras, may answer better than the gum Arabic, as it never hardens.

and the other treatment recommended, strictly followed. So soon as the violence of the inflammation is overcome, a blister should be applied to each temple, and encouraged to discharge, by dressing with basilicon, or weak savin ointment. Dr. James* says, "that blisters have occasionally been applied over the closed eyelids with the best effect." I can say nothing of this from my own practice, but it can be safely relied upon from such authority.

586. After the disease is so much weakened as to permit the child to open its eyes in a dark room, we may use some weak, mild collyrium with advantage; the best that has presented itself to me, is a very weak solution of the acetate of zinc, as follows:

R. Acetate Zinci. gr. ij.
Aq. Rosar. ℥ij.
f. sol.

The eyes to be washed with this, four or five times a day.

587. It is found to be very useful to wash the matter from the eyes, by injecting warm water between the lids, three or four times a day, by means of a small syringe. The mother's milk is also thought to be very useful in preventing the lids from sticking together; this may be frequently milked upon them.

588. The child is sometimes afflicted with pain in the bowels, which occasions it to cry; this should be prevented by giving it a little mild anodyne of almost any kind; half a drop to a drop of laudanum, in a little sweetened water; or Dalby's carminative from time to time, will be found a very good substitute for the laudanum; or the mixture prescribed above (575) may be given, as it will not produce constipation.

SECT. XV.—*Ulceration of the Mouth.*

589. Children are frequently troubled with ulcerations of the mouth; it oftentimes confines its attack to the inferior portion of the frænum of the tongue. It usually commences by a small inflamed point, and pretty rapidly extends itself along

* Burns's Midwifery, Vol. II. p. 32. note.

the inferior margins of the tongue, or rather the loose cellular portions of the skin by which the tongue is confined—it seldom attacks the tongue itself; and for the most part it limits its ravages to the gums, but especially to the cheeks, and the frænum, and its dependencies, where it most commonly commences. The edges of the sores are generally pretty high, and much inflamed; and the ulceration deep in proportion to its surface.

590. The child is first noticed to slaver very much, and become fretful and uneasy; especially, when it is about to take the nipple; this it frequently seizes, and then lets it go with a whining cry, as if in pain. Fever almost always is present at the beginning of the complaint; but it pretty soon subsides after the ulceration has taken place, and the drivelling has become considerable. The bowels are almost always confined, and the palms of the hands unusually warm.

591. The complaint is generally of pretty easy management, if it be attended to, before the ulceration is extensive. Before we use any topical application for this complaint, and particularly if the febrile state be not passed, we should purge the child freely by magnesia, or small doses of calomel; and this plan continued, until the system is free from fever. After the bowels are well emptied, or there is no longer fever, we may use topical applications with great profit. The following has never failed me:

R. Sulph. Cupri. gr. x.
Pulv. C. Peruv. opt. } āā ʒj.
— G. Arab. }
Mel. Commun. ʒij.
Aq. font. ʒiij.
M. et f. sol.

The ulcerations are to be touched with this mixture twice a day, with the point of a camel's hair pencil. This has always speedily put a stop to the disease.

592. There is another ulceration of the mouth, and gums, which takes place in children who are cutting their teeth; and particularly, the back teeth, when a number are about to make their appearance together; this is a very different state of the

mouth from the other. In this complaint, the gums become swoln, very dark coloured, and spongy; they bleed from the slightest force; the child drivels constantly; the breath is extremely offensive, and there is always more or less difficulty in swallowing. The teeth that are cut at this time, soon decay; and those which were through before the ulceration commenced, become injured. I have rarely found any other treatment necessary, than cutting the gums, and having the mouth frequently washed with a pretty strong decoction of bark. Dr. Gunnel informs me, that a pretty strong decoction of the root bark of the sassafras tree is highly useful in this complaint, as well as in the mercurial sore mouth. The mouth is to be washed, or rinsed, frequently with the decoction.

CHAPTER XIII.

OF NATURAL OR UNASSISTED LABOUR.

593. THE classification of labours is altogether arbitrary; scarcely two writers agreeing upon the same arrangement. The object of every classification, is to aid the memory by tracing analogies; to establish general rules from which particular ones may be deduced; and for the convenience of description. Now these ends appear to be answered by almost any division that we may adopt, starting with some general definitions, and making every thing, as far as may be, conform to the generalization. There cannot, therefore, be any one employed which may not be liable, some to more, and others to fewer, exceptions. I have carefully considered them all—some I would reject for their learned parade, without additional perspicuity; others, for their complication, and want of harmony in their parts; others, for their multiplied distinctions without essential differences; and others, for the incorrectness of their definitions; experience being constantly at variance with them.

594. The one in my estimation least liable to objection, is

that of Baudelocque—I am persuaded, that more correct practical notions can be collected by a proper study of his arrangement, than from any other; and I am also certain, that the young practitioner, well acquainted with his system, when placed at the bed-side, will give a more correct view of any given case; will feel less embarrassment in deciding on the proper mode of treating that case, and will commit fewer mistakes in the absolute management of it, than from the study of any other classification whatever. In my view it is as perfect, as the nature of things will permit; and I therefore, from acting under it for many years, have adopted it. In pursuing this plan, I shall constantly feel that I am abridging the labour of the student; removing many of the difficulties of the young practitioner; and confirming the observations of the experienced.*

595. A number of circumstances must concur, that a woman carry her child to the full period of utero-gestation, and then give birth to it, with the least possible trouble, and risk. For the first, she must be free from every cause capable of exciting the uterus to action; or at least to that degree of action, that would terminate in labour. And, for the latter, there must exist in the uterus a healthy disposition to action; and that disposition must be manifested, previously to the commencement of labour, properly so called, by the subsiding of the uterus lower in the pelvis; a secretion of mucus; by a kindly disposition in the circular fibres of the uterus to relax, that the longitudinal need not be fatigued by too long acting; these contractions must be sufficiently powerful, to make the child pass through the pelvis; there must be a disposition in the external parts to yield, without the agency of much mechanical force; there must exist a proper proportion between the opening of the pelvis, and the diameters of the child's head; and that the latter must be well situated, that it may profit by the proper construction of the former; or, in other words, the great

* Though I have adopted Baudelocque's general arrangement, I have not rigorously confined myself to it. This will be readily perceived, from the manner in which I have treated the various presentations.

diameter of the child's head must constantly correspond with the great diameter of the pelvis.

596. As all the circumstances essential to an easy, and natural labour cannot be commanded, it must follow; that there will be deviations from it constantly; and these deviations must be looked upon as so many exceptions to the several presentations, which Baudelocque makes necessary to a natural labour. It would be reasonable to conclude, that the presentations which most frequently occur, would, and must be considered the most natural: now these are found to consist of, 1st, those cases in which the child presents the head; 2d, those in which the breech first offers; 3d, those in which the feet offer; 4th, those in which the knees offer. Each of these general presentations are subdivided, and form varieties.

597. Baudelocque has been censured by some for the details into which he enters when speaking of his general presentations, and his subdivisions of them; but in this their censure was misapplied. Every practitioner who is well acquainted with the form and dimensions of the pelvis; with the construction and various dimensions of the child's head; and with the mechanism of each individual labour; will be so far from condemning him, that he will admit that no man can practise with entire success, or complete usefulness, without a thorough knowledge of them. I agree, that to certain practitioners it will not only appear useless, but burthensome—to those who commit the whole charge of the labour to the management of nature if the head present, no matter how; and who, as she is usually successful, never stop to inquire whether they could have aided her efforts, or abridged her toils, however hard the struggle: or those who consider the presentation of any one of the other parts above designated as essentially wrong; and who will wrest from the hands of nature, a labour, for the accomplishment of which she was every way competent, to terminate it *vi et armis*. Against the cavillings of such practitioners, I do not think it worth the trouble of defending him.

598. As regards myself, for the little I know upon the subject of midwifery, I am principally indebted to him; for to him do I owe the principles which rendered my experience of profit

to me; and could I induce every one who engages in the practice of midwifery, carefully to study this great man's works, I should benefit society, by rendering practitioners so much the more competent to fulfil the duties they have undertaken to discharge. Entertaining such sentiments of the author, I intend chiefly to follow, I shall not deem it necessary to apologize for my choice.

599. In speaking of the presentations of the head, I confine myself, like Baudelocque, to that portion designated by the name of the vertex, or that part which is formed by the posterior portions of the parietal, and nearly the whole of the occipital bones.



CHAPTER XIV.

OF THE PRESENTATIONS OF THE HEAD.

600. THE frequency of presentations of the head, compared with those of any other part of the body, renders them best known; and also entitles them to be considered the most natural: yet even head presentations have essential differences; for they are not all equally advantageous. Therefore, every variety should be well studied; its distinguishing marks well ascertained; and its mechanisms thoroughly comprehended.

601. I shall divide these presentations into six kinds; each of which, has its peculiar characteristics:—In the first presentation, the *posterior fontanelle* is behind the left acetabulum, and the *anterior* before the right sacro-iliac symphysis; the head, therefore, is placed diagonally as regards the superior strait; as is also the case in the second, fourth, and fifth. In the second presentation, the *posterior fontanelle* is behind the right acetabulum, and the *anterior* before the left sacro-iliac symphysis. In the third, the *posterior fontanelle* is placed behind the symphysis pubis, and the *anterior* before the projection of the sacrum—in this, and in the sixth presentation, the great diameter of the child's head is parallel with the small

diameter of the superior strait. In the fourth, the *anterior fontanelle* is behind the left acetabulum, and the *posterior* before the right sacro-iliac symphysis. In the fifth, the *anterior fontanelle* is behind the right acetabulum, and the *posterior* before the left sacro-iliac symphysis. Some have objected to this division, as being perplexing to the memory, without conveying any essential practical information. To the first of these objections it may be answered, that the whole of it can be learned, by pursuing the course I shall lay down, as quickly almost as it can be read; and the same observation will apply to all the other varieties of the natural labour.

602. Let it be remembered; first, that the 1, 2, and 3 presentations of the head, are all represented by the posterior fontanelle; and the 4, 5, and 6, by the anterior fontanelle: second; that in describing these presentations, we constantly follow their numerical order: third; that we always commence with the left acetabulum; go then to the right acetabulum, and then to the symphysis pubis, whether it be the posterior fontanelle or the anterior that is to be represented—this will make the first presentation have the posterior fontanelle behind the left acetabulum, the second behind the right acetabulum, and the third behind the symphysis pubis. Then, as I have just stated, the other three take their character from the anterior fontanelle, and follow precisely the same route, or order—of course, the fourth will have the anterior fontanelle to the left acetabulum, the fifth to the right acetabulum, and the sixth to the symphysis pubis.

603. As regards the second objection, that “this division conveys no essential practical information,” I can only lament the imperfect knowledge the objector must have, of what is absolutely required of every one who attempts to pursue this practice, if he cannot profit, and that materially, by the divisions and distinctions of Baudelocque; for I will maintain, that the excellence of one accoucheur over that of another, will almost exclusively depend upon his accurate knowledge of the different presentations.

604. I have already earnestly recommended to the inexperienced practitioner, to study the different presentations care-

fully; and to take the fontanelles, and not the ears, as his guides. (65) The vertex, therefore, will be distinguished from any other part, by its roundness, its firmness, its sutures, and fontanelle. The particular position of the head relatively to the pelvis, which constitutes the species of presentation, is only to be determined by the position of the fontanelles, and the direction of the sutures; to determine this, however, it is only necessary to ascertain the situation of the fontanelles.

SECT. I.—*Of the first Presentation, and its Mechanism.*

605. In the first presentation, the posterior fontanelle places itself behind the left acetabulum, while the anterior offers before the right sacro-iliac junction; the sagittal suture must, therefore, traverse the superior strait obliquely. For the position of the trunk and other parts of the child, I refer to plate V. and explanation, at the end of the volume.

606. The head of the child in this presentation offers itself in an oblique position as regards the superior strait; by the contractions of the uterus the vertex is made to descend lower in the pelvis than any other portion of the head, which places the chin upon the breast. The head descends in this state of flexion, in the axis of the superior strait, until it is arrested by the sacro-ischiatic ligaments of the left side, the sacrum and perinæum; here the head would remain, did not its relations with the pelvis at the lower strait change in such manner as to force the posterior fontanelle to offer itself to the arch of the pubes—in doing this, there is a slight twist or pivot-like motion executed at the expense of the neck; this may be estimated at a sixth or eighth of a circle. During this change in the direction of the head, it must be recollected, that the trunk does not perform a similar movement.

607. As the head is urged still further forward, the lamdoïdal suture is to be distinctly felt below the symphysis pubis; if the head be not unusually large, or the pelvis a little contracted, or the sacrum too straight, the centre of the occipital bone will be found to correspond with the symphysis pubis: but if either of these circumstances obtain, it will be perceived

to answer to the leg of the left pubis, and ischium. At this moment, the chin of the child, which had hitherto been placed on its breast, begins to depart from it; the vertex advances and separates the external parts, by engaging under the pubes, and rising up towards the mons veneris; the inferior edge of the symphysis pubis answers as a kind of axis for the head to turn on; in doing this, the head describes about a quarter of a circle. The head, in issuing from the pelvis, obliges the chin to describe an extensive curve; passing successively over the whole of the central line of the sacrum, coccyx, and perinæum; while the vertex itself passes through but a small space. So soon as the head has escaped through the external machinery, the face is found to turn almost always towards the right thigh.

608. The shoulders are now to deliver themselves; which they do, in the following order—the right shoulder advances towards the pubes, while the left is placed before the sacrum, and is by the force of the pains made to descend lower and lower until its point issues from the bottom of the vulva, while the right, is freeing itself from under the pubes. When the shoulders are delivered, the rest of the body follows immediately.

609. “By following,” says Baudelocque, “step by step the course I have just traced from observation, it will appear, 1. That at all periods of labour, the head presents its smallest diameters to the pelvis, and that it passes through it, presenting only its smallest circumference. 2. That it executes three different motions in its passage; that of flexion forward, in the first period; the pivot-like or rotatory motion in the second; and, lastly, that of flexion backward, at the time it disengages from under the pubes.” Vol. I. p. 362. See Plate VI.

SECT. II.—*Of the Character and Mechanism, of the Second Position.*

610. The mechanism of the second position is precisely the same as that of the first, if we only change the position of the vertex, and place it at the right acetabulum, instead of the left.

In consequence of the right lateral obliquity of the uterus prevailing so often, and the rectum not passing immediately down the centre of the sacrum, and being occasionally impacted with hardened fæces, this presentation, is not quite so favourable as the first—but we rarely find in practice any essential difference between them; for we may always control the obliquity of the uterus by placing the woman upon her left side; and can empty the rectum by an injection, as is my uniform practice, when I find things thus situated. See Plate VII.

SECT. III.—*Character, and Mechanism, of the Third Position.*

611. In this presentation, the longitudinal diameter of the head,* offers to the small diameter of the upper strait; and where a proper relation exists between the head and pelvis, it is not attended with more difficulty perhaps than the two former positions; provided neither the right, nor the left lateral obliquities, carry the head from the centre of the pelvis; for the vertex will be found to descend behind the symphysis pubis, while the chin will mount upwards, and place itself against the breast, as in the former cases; in consequence of this, the head will only present its perpendicular diameter to

* I have but this moment discovered, that I have declared (58) the longitudinal diameter is to be understood, when I name the great diameter. This is an error; and I regret that it was not noticed earlier. The reader is therefore requested to make the correction for himself, as he proceeds, should the mistake be repeated.

By the great diameter, I mean, the oblique—when the longitudinal is to be understood, it will be called by that name: and though the longitudinal is truly the greatest diameter,† it must not be called so, owing to its so rarely offering itself to the superior strait—the oblique, has therefore taken precedence. Baudelocque, however, does not consider the longitudinal as absolutely the largest—this arises from his not extending his measurement beyond the lamdoidal suture, as he should have done.

In the presentation in question, either of these diameters may be considered as presenting, as it may be earlier or later in the labour. If early, the longitudinal may be offering; but becomes reduced as it were, in the progress of the head; as stated in the paragraph to which this note is affixed.

† We measure, for this diameter, from the centre of the forehead to the centre of the occipital bone.

the small diameter of the upper strait; and when the vertex has arrived at the bottom of the pelvis, the occipital bone will be found to offer itself to the arch of the pubes, and will pass through the external parts, as in the first and second presentations. The shoulders will now present, but there will be no certainty whether it will be the right or the left. See Plate VIII.

SECT. IV.—*Character, and Mechanism, of the Fourth Position.*

612. This position is by no means so favourable, as either of those just described; for the forehead must come under the arch of the pubes, in consequence of the anterior fontanelle being to the left acetabulum, and the posterior to the right sacro-iliac symphysis. In order that the head may pass on, it must descend until a portion of the right parietal bone rests upon the inferior part of the sacrum; when there, the pivot-like motion mentioned (605) in the other presentations must take place, if every thing goes on well, and by the same mechanism. This motion however in this instance, is such, as to place the forehead under the arch of the pubes, by sliding along the left side of the pelvis.

613. In consequence of the forehead being placed under the arch of the pubes, the anterior fontanelle will be found in the middle of the arch, and the posterior above the point of the sacrum. The head being urged by the pains, descends still lower in the pelvis, and makes the posterior fontanelle pass over the coccyx and perinæum, while the anterior and forehead, are confined as it were to the arch of the pubes. Indeed, it mounts a little behind the symphysis; as the latter part, has not the same relation to the arch, as the occipital region; therefore, the anterior fontanelle becomes almost stationary, while the posterior continues to advance, and stretch the perinæum, which presently slips over the occiput, and retires with its edge to the child's neck, and, like the same part when under the arch of the pubes in the former presentations, becomes the centre of motion, and permits the occipital region to turn backward towards the anus of the mother; at the same time the face disengages itself from under the pubes. In this instance, as in the

former, the chin is made to describe a curved line, but in a contrary direction.

614. So soon as the chin is liberated from the arch of the pubes, and appears without, the face of the child, by a half turn, places itself towards the left thigh of the mother; at the same time the shoulders descend, and the left is found under the pubes, while the right moves towards the sacrum, and is first disengaged from the vulva. See Plate IX.

615. This species of labour is necessarily more difficult, and painful, than those we have just considered; and it oftentimes becomes extremely so, if the head be either relatively, or positively large for the pelvis. It requires, in some instances, many hours to accomplish a labour, that would have speedily terminated, had either of the two first been the presentation, under the same circumstances; more especially, if resisting soft parts should be added, to the other difficulty. Baudelocque thinks, that the right lateral obliquity would also increase the evil of this presentation; but this I believe can be surmounted, by placing the woman upon her left side. This labour is always of longer duration, than where the vertex presents; and of course the woman's sufferings increased, in proportion to the duration; now, as we almost always have it in our power to reduce both this, and the fifth, to the second, and the first, we should always do it, when nature does not do it for us.

616. I consider a perfect knowledge of this presentation (for it is far from being unfrequent) a matter of high moment to the practitioner; and particularly so in this country, where the study of midwifery engages so much of the attention of the medical student; and where every one almost, who enters upon the practice of physic, must also become a practitioner of obstetrics. So positive an advantage does a knowledge of this presentation, and the mode of reducing it, give one practitioner over one who may be ignorant of it, as to enable him to terminate a labour in as many minutes, as the other might wait hours.

617. So decidedly advantageous is the knowledge of the fourth and fifth presentations, to the patient, that I hold that

man incompetent to practise midwifery, in its best manner, who cannot detect, and change this mal-position of the head, and thus abridge, sometimes, by several hours, the misery and pain of his patient. I therefore hold Dr. Denman's* advice as unfriendly to the improvement of midwifery, when he says, "When the membranes break, if the os uteri be fully dilated, the child, though resting at the superior aperture of the pelvis, either sinks by its own gravity, if the woman be in an erect position,† or is propelled by the continuance of the same pain by which they were broken; or, after a short respite, the action of the uterus returns, and the head of the child is brought so low in the pelvis, as to press upon the external parts; properly speaking, upon the internal surface of the perinæum. In its passage through the pelvis, the head of the child, which, at the superior aperture was placed with one ear to the ossa pubis, and the other to the sacrum, or with different degrees of diagonal direction, undergoes various changes of position, by which it is adapted to the form of each part of the pelvis, with more or less readiness, according to its size, the degree of its ossification, and the force of the pains. *With all these changes, whether produced easily or tediously, in one or many hours, the practitioner should on no account interfere, provided the labour be natural.*"

618. Agreeably to this advice, we are not to interfere, though the head present in either the fourth, or the fifth presentation; though we can, by an opportune, and well-directed force, shorten the woman's sufferings perhaps many hours; especially with a first child; and this without offering the slightest violence to either mother or child. Nature, indeed, sometimes, though not sufficiently often, operates this change herself; and is this not sufficient to warrant the practitioner to imitate her? I have always done this since I first became sensible of its advantages; a period of at least eight-and-twenty years, unless the labour

* Introduction, Francis's ed. p. 282.

† Dr. Denman is certainly wrong, when he supposes that the child's head will sink into the cavity of the pelvis by its own gravity, if the woman be standing: for, when she is erect, the head finds a certain resting place on the anterior margin of the pelvis.

has been too far advanced to permit a change, which has not been oftener than three times, during the whole of the period stated. In doing this, I am well assured that I was but performing a duty by shortening, as well as moderating the woman's sufferings—indeed, so convinced am I of the propriety and utility of this “interference,” that I should hold myself culpable did I neglect to take advantage of this important hint of nature.

SECT. V.—*Character, and Mechanism, of the Fifth Presentation.*

619. All the relations of the child's head, and that of the pelvis, are the same in this, as in the one just spoken of; we have only to change the anterior fontanelle to the right acetabulum, and recollect the mechanism of the fourth vertex presentation, to be in possession of this; but in this presentation, a little more difficulty may be experienced than in the last, owing to the contingencies (610) which may make the second, not so favourable as the first, as has been already stated. When the head escapes from the vulva, the face will turn towards the right groin. Nature sometimes reduces this case to a first presentation, and thus teaches us a salutary lesson. See Plate IX.

SECT. VI.—*Character, and Mechanism, of the Sixth Presentation.*

620. This presentation is of most rare occurrence; having met with but three instances of it; two of which, were twin cases; but from the smallness of the heads, there was not the slightest inconvenience. They happened, in both cases, to be with women who had previously borne children. The third instance was under the care of a midwife; and, as it was one of much longer duration than the woman had before experienced; and as the pains were very frequent, severe, and ineffectual, my advice was asked. I found the head still at the superior strait; the anterior fontanelle was immediately behind the symphysis pubis; the scalp was very tumid and pushed forward, and downward. I waited for the effects of two or three pains, which I found did nothing more than push the swollen scalp a little lower in the pelvis, without advancing the

head, though the efforts were very strong. I passed up my hand, and turned the anterior fontanelle towards one of the acetabula, and then committed the case to the natural powers; which pretty soon accomplished the delivery.

621. The character of this presentation is exactly the reverse of the third; that is, the anterior fontanelle is placed behind the symphysis pubis, and the posterior before the sacrum. There are two circumstances connected with this position, which render it less favourable than either of the other positions: 1st. The length of the head, or the longitudinal diameter being parallel to the small diameter of the upper strait. 2. The forehead being under the absolute necessity of coming under the arch of the pubes; for in this presentation, we cannot, as in the fourth and fifth, change it to the second or first, as I shall have occasion to observe elsewhere. See Plate X.

622. The occiput, in this presentation, descends along, and before the sacrum, until it arrives at the inferior part of the os externum; pressing the perinæum before it, until it escapes through the external parts; it then turns immediately backward, as described in the fourth, and fifth, species of vertex presentation.

623. It would be easy to multiply the presentations of the head, as Baudelocque justly observes, were it of any practical importance; but as this is not the case, it would only tend to embarrassment, instead of answering any profitable purpose. Mathematical precision is not required in such cases; especially, as the mechanism of the labour is not altered; for, when the posterior fontanelle is at all in advance of the sacro-iliac junction, either right or left, it will eventually place itself under the arch of the pubes, and this is all that is necessary.

PART II.

OF LABOURS, IN WHICH THE CHILD PRESENTS THE VERTEX, BUT RENDERED DIFFICULT OR PRETERNATURAL.

624. I NOW commence, agreeably to the plan proposed, with the consideration of the causes which may render a natural labour preternatural, or difficult, but which can be terminated by the hand alone: as well as the mode of operating in such cases. I shall exclude from this division, such causes, as would render the use of instruments necessary or proper, they being to be considered under another head.

CHAPTER XV.

CAUSES OF PRETERNATURAL LABOURS.

625. THERE are many causes which may render a natural labour, a preternatural one; or it may be essentially bad from the untoward situation of the child. They may, therefore, be both accidental, and unavoidable. Among the causes we may enumerate: 1st. Flooding; 2d. Convulsions; 3d. Syncope; 4th. Hernia; 5th. Obliquity of the uterus; 6th. Partial contractions of the uterus; 7th. Compound pregnancy; 8th. Descent of the cord; 9th. Too short a cord; 10th. Bad position of the head; 11th. Exhaustion; 12th. Hæmorrhages from the lungs or other organs.

626. A labour may commence with every prospect of being speedily and successfully terminated; but, after a continuance

for a longer or a shorter time, of the fairest promise, the patient may be assailed by some accident, which puts in jeopardy her life, or that of the child, or both, and from which nothing can save them, but the well-directed, and timely interference of art. One of the most common, and, at the same time, one of the most alarming, is

SECT. I.—1. *Flooding.*

627. In treating of flooding in this place, we confine our considerations to the subject in question; or, in other words, as an indication in a natural labour; and where that indication points out no other remedy than delivery by turning, or other manual interference. A flooding may take place after labour has commenced, under two different conditions of the os uteri; first, where it is but partially dilated, but rigid; second, where it is dilated, or easily dilatable.

628. These two conditions are by no means indifferent; they are of great practical importance, and should never be lost sight of.

629. Should hæmorrhage take place in the early part of labour, and before the os uteri is sufficiently well opened for the purposes of delivery, we should not think of immediate delivery; as there can be no absolute necessity for hasty or rash interference, while the uterus is in the condition here spoken of, it would be the height of imprudence, forcibly to enter the uterus, for the purpose of turning. Indeed Baudelocque* says, and I fully concur with him, "Whatever abundance of blood the woman may lose, nothing could justify the conduct of the accoucheur who would persist in endeavouring to deliver without delay;" for it would only be creating new difficulties, instead of relieving her of the existing one.

630. The plan of proceeding in such cases, is, first, to attempt moderating the discharge, by rest, a horizontal posture, by blood-letting if the pulse be full, by the exhibition of pretty large doses of the acetate of lead, by cold applications, but

* System, Vol. II. par. 1089.

above all by the tampon.* See Chapter on Uterine Hæmorrhage. Second: By promoting the contraction of the uterus, should the above means fail, by rupturing the membranes as directed by Puzos; but under the restrictions suggested, when treating on this point, in the chapter just referred to.

631. Should the hæmorrhage take place when the os uteri is well dilated, or easily dilatable, we should proceed to turning; provided, the rupturing of the membranes has not abated the discharge; or the flooding should have commenced after the waters had been evacuated; if the quantity threaten the life of mother or child, and the child's head is at or near the upper strait; and provided, also, the natural powers of delivery do not advance the head sufficiently fast to give a promise of a speedy delivery.† Should the signs which would render

* In using the tampon, it is never necessary *to stop the mouth of the uterus*, as recommended by Leroux, Baudelocque, and others; it is every way sufficient, if we occupy the vagina by a sponge of sufficient size—the mouth of the uterus becomes filled pretty quickly by a coagulum, if the tampon is as successful as might be anticipated.

† It has been advised by some, when we have so far succeeded in turning, as to bring the feet to the passage, that we should wait some time, before finishing the operation. Dr. Davis is the latest authority for this practice: he observes, "It is a fact, which it must have often occurred to practitioners of experience to observe, that the operation of turning is for the most part immediately followed by a cessation of the hæmorrhage. The change thus effected in the situ of the child in utero being made, it is generally both unnecessary and improper to proceed hastily to complete the delivery; which therefore it would be often much better to delay for an hour or two, to wait a favourable disposition of the soft parts, than to undertake it immediately after having brought down the feet into the birth." (*Elem. Oper. Mid.* p. 160.)

I cannot by any means agree to this advice; and for the following reasons:—1st. Because I have never recognised as a fact, that "the operation of turning is for the most part immediately followed by a cessation of the hæmorrhage;" that is, the mere change of position of the child; for there can be no possible reason why it should be so; unless it give greater opportunity for the tonic power of the uterus to exert itself; and this can be as certainly effected, by simply rupturing the membranes. 2d. In an hæmorrhage of such extent as would require turning as a remedy, the patient can never be considered safe until the uterus is empty, that the tonic powers of this organ can effectually arrest the discharge. 3d. After we have been forced to enter the uterus, I believe it to be the soundest practice, to finish the delivery, slowly and carefully: especially, as I never attempt

turning the best mode of terminating the delivery not be present, we must have recourse to the forceps.* The mode of operating with them in particular presentations, will be pointed out under each respective case. See Chap. on Forceps, &c.

SECT. II.—2. *Convulsions.*

632. This alarming disease may attack a woman after labour has commenced, and under precisely the same conditions of the uterus as I have stated above. (627) Should they attack while the uterus is but little dilated, and rigid, we should not think of attempting the delivery of the child; as it would necessarily be as mischievous in this, as in the former case. Our first attempt should be to moderate the force, and diminish the frequency of the convulsions, by blood-letting, and the other means recommended in the chapter upon this subject; until the uterus has become softened, or dilated; then, provided the natural powers be not sufficiently active, or competent to the finishing of the labour, we should proceed to turn.

633. Should the uterus, however, be dilated, or easily dilatable; and the convulsions threatening; especially, if the pains are not of sufficient force or efficacy; we should immediately

to turn in such cases, until there is "a favourable disposition of the soft parts" to permit the delivery; as I am certain, it can never be absolutely necessary to interfere until then. (See Chapter on Uterine Hæmorrhage.)

* Dr. Davis intimates, rather than enforces, the use of the forceps, under circumstances, which my reasoning upon the subject, as well as my experience, leads me to fear; namely, where the head is high in the pelvis. He says, "In cases of hæmorrhage occurring at an early period of labour, there could indeed be no impropriety in having recourse to the use of forceps of more than ordinary length, provided the state of the orifice of the uterus as to dilatation, was such as to be compatible with the safe employment of any kind of instrument on the principle of the forceps. In some few cases of this description, the foetal head being only about to engage at the brim of the pelvis, there might occasionally be some difficulty in determining on the choice to be made between an operation with the forceps, and that of turning."

Now, in my estimation, there can be no hesitation about the choice of means—the forceps must not be thought of, in this situation of the head; turning, as the proper remedy; for the hæmorrhage will itself remove the only difficulty in this case; namely, the obstinate contraction of the uterus.

proceed to the operation of turning, after a copious bleeding, with a view to diminish the injurious tendency of the convulsions upon the head. But should the waters be long drained off, and the head low in the pelvis; and invariably, should it have escaped from the mouth of the uterus, the forceps are exclusively indicated. See Chapter on Puerperal Convulsions.

SECT. III.—3. *Syncopes.*

634. I have seen several instances where the pains of labour were regularly followed by syncope. In these cases, this condition of the system did not seem to interrupt the progress of the labour in the slightest degree; this affection was constitutional, and such as would follow, in these patients, any great excitement or alarm; or from pain or temporary exhaustion. In such cases, we never think of interfering with the natural progress of labour. But when these faintings take place, where this peculiarity of constitution will not account for them; where they are attended with increasing exhaustion; where the labour-pains diminish both in force, and frequency; where faintings become more permanent in their duration; and where the pulse flags, or becomes nearly extinct, it behooves the practitioner to discover, if possible, the cause, and as quickly as may be, to remove it.

635. Dr. Davis, (*Elem. of Oper. Mid.* p. 171) relates a very interesting case of syncope, which I shall copy. "A poor woman, a patient of the Royal Maternity Charity, under the care of an intelligent midwife, after having been in labour for about five hours, became suddenly very faint upon the bursting of the fetal membranes, and the discharge of a considerable quantity of liquor amnii, whilst, being supported in a sitting attitude on a chamber utensil, she was making an effort to respond to one of the calls of nature. She was immediately laid down in a horizontal posture: but upon further adjustment of her person and bed-clothes, she was found to be perfectly dead." "The body of the deceased was carefully inspected on the following day: but no cause could be discovered for the sudden death."

636. An internal hæmorrhage* is perhaps the most frequent cause of this alarming condition: when it proceeds from this source, it always commences gradually; that is, the debility is not suddenly induced; nor are the syncope at first profound; but both may pretty rapidly increase, in proportion to the extent or force of the remote cause.† The abdomen is observed to enlarge; sometimes, there is a slight external hæmorrhage, or discharge of serum a little tinged with blood; the pains slacken; and the woman becomes exhausted.

637. In cases like these, there appears to be but one remedy; which is immediate delivery by turning; provided, the uterus be in the condition already sufficiently often indicated, to permit this operation; and if not, I am pretty certain there is not that necessity for instant delivery, that would put at defiance the rules I have endeavoured to inculcate against forcibly entering the uterus for any purpose—for it must be recollected, that after labour has commenced, and made some little progress; and especially, if the woman has gone to the full period of utero-gestation, the disposition to syncope, is oftentimes favourable to the dilatation of the os uteri; or, at least, renders it so pliant as to be penetrated by a little force—when this is so, turning is the remedy; but we must take care to secure the tonic contraction of the uterus, before we attempt the delivery of the placenta.

638. Baudelocque‡ relates cases of concealed hæmorrhage which are highly interesting, and well worth consulting. From

* Baudelocque, System, par. 1113, relates a case of syncope from a very large calculus in the gall-bladder.

† I was called to a poor woman, whom I found dead upon my arrival, from this kind of hæmorrhage, joined to an external one—but as the latter was not sufficient to cause death; and as it was declared by the midwife, and the women who were present, that the abdomen was enlarged after the discharge became apparent, and as this had been arrested by some means or other, I suspected an internal hæmorrhage to be the cause of her death. Leave was procured to inspect the body, and my suspicions were confirmed. In this case, the hæmorrhage took place some hours after the labour was begun; but there was a suspension of pain soon after, and most probably at the time the hæmorrhage took place, as the woman had said she was now easy, and wished to go to sleep.

‡ System, par. 1081, 1083, 1084.

what he relates upon this subject, it would appear, than an hæmorrhage of this kind may take place long before, as well as near the period of nine months; and that the immense distention the uterus suffers from the influent blood, proyokes it to contraction, and brings on labour-pains. But as the cause which may produce indicative syncope, cannot always be ascertained; and as it is rational to suppose it is in some way or other connected with labour; it will be well, under proper conditions of the uterus, to turn, and thus remove a difficulty, if not the cause of the faintings. Should these occur when labour is far advanced; or when turning would be improper, the forceps must be used.* (See Chap. on Forceps.)

SECT. IV.—4. *Hernia.*

639. Hernias of long standing, sometimes are in danger of becoming strangulated from the excessive force of labour—if this take place, we are obliged to deliver by turning, when the natural powers seem to be too tardy for the condition of the hernia—the time when this is to be attempted, as regards the condition of the uterus, has been already pointed out. I will, however, illustrate this by the recital of an interesting case. Mrs. —, had laboured under an unreduced umbilical hernia for eighteen years; it gave her trouble whenever she neglected her bowels, or was imprudent in diet. When I was called to her, she was in labour with her tenth child—she was a very corpulent woman, and always suffered from a great anterior obliquity of the uterus; her labours were wont to be both tedious and severe. Upon this occasion, it was uncommonly slow and painful; much uneasiness had been experienced in the hernial tumour from time to time during the whole day, but towards evening (about twelve hours after her labour had fairly commenced) it became more and more severe, particularly after each pain—fearing what might happen, in the early part of the day I had ordered her a full dose of castor oil; and this was followed by a brisk purgative injection; the latter pro-

* I have already remarked, (632) that turning is never to be attempted, when the head has escaped from the orifice of the uterus.

cured a copious evacuation of fæces when it came off, but the oil had no effect. Vomiting now ensued; this was followed by a disposition to syncope, and other alarming symptoms, arising, as I supposed, from a disposition in the hernial contents, to become strangulated. I mentioned my opinion, with candour, to the friends of the patient, and proposed immediate delivery as the most probable means of preventing further mischief, though I confessed I was by no means certain it would be absolutely effectual. The os uteri was now sufficiently dilated, to permit the operation with propriety; the membranes were entire, and every thing favourable for the attempt. The patient was placed, as will be directed by and by; the hand was passed, the membranes ruptured, and the turning performed in the course of a few minutes, with the most entire success; the placenta was delivered in due time. A full dose of laudanum was now given; the vomiting and sickness of stomach were immediately relieved by the delivery—less pain was experienced in the tumour, and all the unpleasant symptoms seemed to vanish, after a copious evacuation from the bowels, procured, doubtless, from the oil, which fortunately had only been retarded, and not interrupted by the laudanum. My patient's recovery was as rapid as was usual with her. She died about twelve years after, of strangulated hernia.

640. Should the symptoms which would render immediate delivery necessary, not occur until the head is low in the pelvis, the waters long drained off, or the head arrested by bad position, or if it have escaped from the os uteri, the forceps are exclusively indicated. See Chap. on Forceps.

SECT. V.—5. *Obliquity of the Uterus.*

641. The deviations of the uterus, under the name of obliquities of this organ, have already been pretty fully treated of—(see 215, &c.) it very rarely happens that either of them alone is the cause of a preternatural labour, though it may complicate it very disagreeably.* I have but once found it necessary to turn for this cause; and this was in a very small

* See Baudelocque's cases, par. 298.

woman, with rather a contracted pelvis, who laboured under the most extensive anterior obliquity I ever remember to have seen. She was placed upon her back, with her shoulders lower than her hips; the belly was supported by a towel, and the hands; but nothing seemed sufficient to make the head engage in the pelvis. The pains were extremely severe, and very frequent; and the poor creature suffered for many hours to no purpose. Seeing no prospect of delivery taking place from the exertion of the natural powers, I thought it best, after due consideration, to terminate the delivery by turning—this was accordingly done, with perfect success.

SECT. VI.—6. *Partial Contractions of the Uterus.*

642. By these, we are to understand the contractions round the neck of the child, of the external or inferior edge of the mouth of the uterus, as well as that portion which, in the unimpregnated state, constitutes the internal edge, or orifice, of this organ; so as to prevent the descent of the shoulders. The first of these conditions is the most serious in its consequences; because, most difficult to remedy. In this case, the head of the child has escaped through the external ring which constitutes the mouth of the uterus; in consequence of which, this part retracts itself behind it, and then, no longer being upon the stretch by the bulk of the head, contracts; and this so strictly sometimes, as to embrace the neck—when this takes place, the shoulders cannot pass the barrier which the contracted neck offers, and are thereby arrested; and their form, is but ill calculated to dilate again the mouth of the uterus; for now, it can only be opened by mechanical means.

643. In the second case, the head remains enveloped in the lower portion of the uterus (which portion in the unimpregnated state constitutes its neck,) while the internal edge contracts round the neck of the child, but not so strictly; and thus is offered on all sides an inclined plane for the shoulders to rest upon. This contraction is much more frequent than the former; and is sometimes decidedly the greatest obstacle we have to encounter when we attempt to turn, after the waters have

long been drained off. It will readily be perceived, that it is essential to either of these cases, that the waters be discharged; and, as far as my own experience will justify the remark, neither of these contractions takes place, but after the lapse of a considerable time; at least, to the degree that would seriously obstruct delivery.

644. These cases necessarily result from the constant disposition which the uterus has to return to its original size, after the distracting cause is removed; and this, as I have elsewhere observed, is owing to its constant tendency to accommodate itself to the shape and inequalities of its contents, by virtue of its tonic power—hence, the contractions in question.

645. When either of these conditions complicates the labour, it will become stationary, or nearly so, for many hours; and whatever other cause may combine with the existing one, to render immediate delivery either desirable, or indispensable, it will be found almost impracticable to perform it by any means. If we attempt to turn, we shall find it almost impossible to insinuate the hand into the orifice of the uterus, to dilate it sufficiently, to permit it to pass to the feet; and if we apply the forceps, we can only deliver at the risk of tearing the uterus; especially, in the first of these cases. In the second, Baudelocque says,* “though it may in some cases produce as great an obstacle to delivery, it is always easier to overcome it, and the same inconveniences do not result from it; because the head is not so far engaged, and may always be pushed back; which permits us to advance the hand under the uterine circle in question, and dilate it.” I do not altogether agree with this high authority on this point; for I have certainly met with this case, where I could not push back the head, and thus dilate the stricture; and also, I have found there was no possible advantage in merely overcoming this resistance by passing the hand pretty forcibly through the contraction, so long as the stricture continued in force, after the hand was thus passed. For if the contraction be not entirely removed, or so weakened, as to yield to a moderate force, there is nothing gained by bringing

* System, par. 1118.

down the feet to the orifice of the uterus, or even lower; for the instant the breech descends to this stricture, its progress is arrested, by the inclined plane I have just spoken of; and no force that could safely be exerted, will make it pass through this narrowed portion of the uterus.

646. Of the first of these cases, I can find but one upon my records; nor have I any recollection that I have ever encountered more. Baudelocque says he has seen but one; it must therefore be of rare occurrence. Of the second I have witnessed many; indeed I believe it may be almost always found where the waters have been long evacuated; and when the pains are of a feeble, and transitory kind, for many hours after. I have rarely failed to find it, when it has been expedient to finish a labour by turning; where tediousness, and other causes have rendered this interference necessary. And it is one of the most usual, as well as one of the most obstinate and insurmountable causes, which oppose turning in the contracted uterus.

647. These cases may be suspected whenever there is no advancement of the labour, though the pains may be powerful; and there is neither a contracted pelvis, nor a bad situation of the head, nor a rigidly closed os uteri to account for the delay—where, during the pain, the head is found to descend, and gives temporary assurance that delivery will take place pretty soon: but where these hopes are instantly destroyed by the head being quickly retracted, so soon as the pain shall cease to urge it downwards.* And they may be ascertained by passing the hand beyond the head of the child—in the first case the *circle* of the os uteri will be found round the child's neck; in the second, the *higher portion* will be found in the same situation.

648. The management of these cases is by no means so well understood as to free them from all embarrassment, to even

* This case must not be confounded with that retraction of the head, which takes place when the parietal protuberances are about to pass below the tubers of the ossa ischia; and supposed by some to indicate too short a funis—this last takes place only at the last period of labour; whereas the other occurs before the head occupies the lower strait.

practitioners of considerable standing; this has arisen perhaps from their not having been well described by any author with which we are acquainted, except Baudelocque;* and his account is defective as regards the treatment, as it does not inform us how we are to overcome the constriction, after the hand has passed it; for if we do not find means to relax it, or very much abate its force, the breech cannot be made to pass. I will point out the mode I have pursued in such cases, by relating a case extracted from my "Essay on the Means of lessening Pain, &c." p. 137.

649. "1798, December 18th: I was called to Mrs. Z—, in labour with her third child; she had been in pain for forty-eight hours; waters discharged thirty-six; the uterus well dilated; pains severe, but no advancement of the child; during the pain, the child's head, which was well situated, would be forced down, but as soon as it ceased it would again be retracted; this had been the case many hours before I saw her. In order to ascertain the cause of this delay, I introduced my hand into the uterus, and presently found the cause of the child not advancing; a circle of the uterus had closed between the shoulders of the child and its head, which prevented their passing. I bled her to fainting; pains soon came on, and she was quickly delivered."

650. This case terminated without the necessity of turning, but I have not been always so fortunate; some cases to which I have been witness, required this operation, and others the forceps. The value of this case consists chiefly in showing the very decided efficacy of blood-letting, and has been quoted for this purpose principally, as it is the remedy which should always be employed in such cases, and should be carried to the extent mentioned. It is the only remedy with which I am acquainted, that has any decided control over the contracted uterus; it is one almost certain of rendering turning practicable under such circumstances, if carried to the extent it should be—a small bleeding in such cases is of no kind of advantage; for, unless the practitioner means to carry the bleeding to its

* System, Vol. II. p. 111, par. 1117, 1118.

proper limit, which is a disposition to, or the actual state of syncope, he had better not employ it.

651. Turning must not be thought of in the first of these species, as the head is without, or escaped through the os uteri; the forceps are, in that case, the only proper remedy; but before they are employed, the same precaution of an extensive bleeding should be premised, or otherwise the most serious mischief may follow—either the uterus would suffer a laceration at the stricture, or it would be dragged with the child's body through the external parts.

652. The cases in which I have the oftenest experienced the good effects of blood-letting, were of the second kind of my division; but I am, from what I have seen, as certain it would be equally proper, and equally successful in the first—in reasoning upon the subject, I should, *à priori*, think it would be, if possible, more so in the first than in the second species; as there are fewer fibres concerned in that portion of the uterus which forms the stricture; and besides, we have the most ample experience of its good effects, in the rigid state of the os uteri, before it has become dilated.

653. When bleeding is determined on, the blood should be drawn from a large orifice, and the woman placed upon her feet, if practicable—much less blood will answer, if the bleeding be conducted in this way.

SECT. VII.—7. *Compound Pregnancy.*

654. When a woman is pregnant with twins, or more children; it will be found that the uterus does not, nor indeed cannot, act as favourably for their expulsion, as if there were but one. The reason is obvious even with twins; since, in such cases, the uterus cannot close upon the whole surface of a child at once; its powers are therefore exerted in such manner as that both the children shall receive a part of their influence; and both of course, will be pressed equally, or nearly so, towards the opening of the pelvis, but in which, both cannot engage at one and the same time. This will create difficulty in some cases, from the very commencement of labour, and

which cannot even eventually be overcome, by the natural agents of delivery; the delivery will therefore be protracted, as well as painful; and no alternative will be left for finishing the labour, but by artificial means; hence, the frequency of a necessity to interfere—this case will sometimes require turning, at other times, merely bringing down the legs, &c.

655. This embarrassment may sometimes be created, even in the best positions that twins can take; it will, therefore, be increased when they should offer untowardly to the opening of the pelvis; when one or both may be hydrocephalic, or have the abdomen loaded with water; when there shall be more than two children; when two may be joined together, creating a monster, &c. No distinct rules can be laid down for the management of such cases; interference almost always becomes indispensable—but the precise mode of acting, must be left very much to the good sense, and discretion of the accoucheur.

656. Independently of obstacles arising from the compound nature of the pregnancy, or the awkward situation of the children which compose it, this labour, like every other, may be complicated by many of the accidents already enumerated, or to be enumerated, and thus require immediate delivery. But should this plan be considered as indispensable for the relief of the woman, it yet must not be carried into execution, before the uterus is in a proper condition, as has been constantly insisted, in every other case. See Chapter on Twins, &c.

657. Should the nature of the case be such as to render turning either improper or impracticable; that is, if the head of the child cannot be moved up, in consequence of its being wedged by another child, or so low, that it would be dangerous, after the long escape of the waters, to attempt turning, or after it has escaped from the neck of the uterus, we must then terminate the labour by the forceps.

SECT. VIII.—8. *Prolapsus of the Umbilical Cord, &c.*

658. It is a matter of some surprise, that the case now under consideration, should not occur more frequently than it does;

since, we do not perceive that any part of the economy of labour, or the natural order, or disposition of the fœtus and its cord within the uterus, appear calculated to prevent it; yet, comparatively, a prolapsus of the cord is an event of rare occurrence. With respect to its becoming a cause of preternatural labour, it is only to be considered as such, when there is circulation in the cord; and when there is evidently a risk of its being interrupted, before delivery can take place by the natural agents, in time to save the child. When this occurs, turning may be had recourse to—1st. When the uterus is sufficiently dilated or dilatable; 2d. When the head is still enclosed in the uterus; and 3d. When there is no deformity of pelvis to defeat the object. Should the forceps, however, be at hand when the head is low, and the cord in danger of compression, or actually compressed; we should without hesitation employ them.

SECT. IX.—9. *Too Short a Cord.*

659. It is said that too short a cord, either natural or artificial, will interrupt a natural labour, and oblige us to finish it by turning. I shall not positively deny such a condition of labour; but I must say, I have never seen an instance; and also, that I entertain strong doubts of its possibility. See Chapter on Prolapsus of the Cord.

SECT. X—10. *Of the Bad Position of the Head, though the Vertex present.*

660. It is not simply because the vertex presents, that this labour is in general esteemed the best—it can only be considered strictly so, when the great diameter of the child's head, corresponds with that of the pelvis, and while this part maintains a certain position in its course, as well as describes a given route, in that course—therefore, the third and sixth presentations must be essentially bad; since with them the reverse of a good presentation obtains; that is, the great diameter of the head offers to the small diameter of the superior strait, in both cases; besides the sixth having the disadvantage of the forehead coming under the arch of the pubes.

661. But if the head present in the best possible manner at the superior strait, it gives no absolute security, it shall continue so; since, it may depart from the route, which is essential to an easy labour. Therefore, the labours in which the vertex presents, may require interference from four different causes: *a.* From the vertex presenting to the small diameter of the superior strait, as happens in the third and sixth presentation. *b.* From the chin departing from the breast too early; though at first a proper relation existed between the head and pelvis. *c.* From the presence of the face; owing, to the excessive departure of the chin from the breast, or the retiring of the vertex, toward the back. *d.* From some part, as the hand, or arm, accompanying the head; though the latter was at first well situated.

a. Bad Position of the Vertex.

662. In the third presentation of the head, the vertex offers to the pubes, and the anterior fontanelle to the sacrum. Should the pelvis be ample, or the head not too large, which virtually amounts to the same thing, the natural powers concerned in labour will be every way competent to its accomplishment; but should the reverse obtain, great difficulty may be experienced; or the labour be impracticable, without extraneous assistance. When the difficulty to delivery depends exclusively upon position, we have nothing to do, but to change it, to remedy the evil; and then commit its farther charge to nature.

663. When we are about to rectify the position of the vertex, the woman must be placed, as will be directed by and by; the hand introduced into the vagina; the head grasped by insinuating the thumb and fingers within the orifice of the uterus, in such manner, as the fingers shall lie on one side of the head, and the thumb on the other; then raise the head a little, and turn the vertex towards one of the acetabula—if the right hand be used, turn it towards the right acetabulum; if the left, to the left acetabulum; and then trust the rest to nature. But should any of the accidents I have enumerated complicate the labour, and render delivery immediately necessary, we must

turn, and deliver by the feet; provided the os uteri be in a proper condition.

664. If it be the sixth presentation, we must proceed as above directed; (663) and reduce the situation of the head, to either the fourth, or fifth; and then commit it to the natural powers for furtherance. It must be remembered, that in the changed sixth, to the fourth or fifth, we must not attempt a farther reduction, as recommended for both these presentations, when they originally offer; as this attempt, if successful, would necessarily destroy the child, by the excessive twist the neck must receive in the operation. Should any of the accidents mentioned above complicate the labour, we must turn, and deliver by the feet; as directed for the third presentation. (662) Or, if the waters have long been expended, or the uterus in a state of inertia, we should apply the forceps. See Chap. on Forceps.

b. Chin departing too early from the Breast.

665. When treating on the mechanism of labours of the vertex, I remarked that the chin rested upon the breast of the child (606) until the vertex or forehead were about to emerge from under the arch of the pubes; and that this position of the chin was essential to a natural, or easy labour; when the chin does not confine itself to the breast, until the proper time for leaving it, the great diameter of the child's head must offer to the small diameter of the lower strait, at the last period of labour; and thus present almost insuperable difficulties to delivery.

666. This case is known by the anterior fontanelle being found in the centre of the pelvis, in the *beginning* of labour; and, at the *last period*, by this part being at the bottom, or rather the lowest part of the child's head, and resting on the internal face of the perinæum; by one of the parietal protuberances offering under the arch of the pubes; and by the forehead being placed on one side of the pelvis; but on which side will depend, whether a first or fifth; a second or fourth presentation, was deranged. If either of the two first, the forehead will be to the right side; if the two latter, to the left.

667. Various causes have been assigned for the production of this very untoward situation of the head: Levret supposed, it was owing to the shoulders being arrested at the superior strait, in consequence of the oblique situation of the child's body; while Baudelocque, contends it arises from the direction of the expulsive forces of the uterus, and the manner in which they act upon the child's head.

668. The indication in this situation of the head is, to restore the chin to the breast; this may be effected at two distinct periods of the labour; first, where the head has not descended entirely into the lower strait; the second, where it occupies the lower strait. As regards both convenience, and certainty, the first situation of the head is the preferable to operate upon; and, where practicable, should be chosen. But, to act with success, it is necessary that the os uteri be well dilated, and the pains sufficiently brisk. The mode of acting in this case is very simple; first, rectify the obliquity of the uterus, by placing the woman upon the side opposite to the deviation, if it be either the right or left lateral that prevails; upon the back, if the anterior; second, in the absence of pain push up the forehead, and maintain it in that position by making a fulcrum of the points of two or three fingers; when a pain comes on, maintain the resistance, by supporting the forehead with the fingers, until the vertex is found to descend, and the forehead to rise in the pelvis; when this is done, the delivery of the head may be trusted to nature. I believe it is seldom necessary to introduce the whole hand, in this case; though perhaps absolutely necessary in the second.

669. Baudelocque recommends acting upon the forehead in the time of pain; I am aware, that it is rarely safe to differ from this best of authorities; yet I am equally convinced, it is occasionally proper to do so—and the case we are considering, is one in point—first; because, did we act in time of pain, we should be under the necessity of overcoming its force, before we could raise the forehead; this, of course, would be a work of supererogation; second; by acting in the absence of pain, we, by a very little force, can carry the forehead as high as we wish, and can maintain it in the position we desire it to

take, by an exertion scarcely more than the weight of the child's head; third, the vertex will descend as a matter of course, if the forehead be prevented from doing so; fourth, by acting during pain we are obliged to carry the forehead in direct opposition to the action of the uterine forces, which, when the uterus firmly embraces the head, are so entirely in the direction in which the forehead would descend, that we should only raise the forehead, without giving an opportunity for the vertex to fall into the pelvis.

670. In the second situation of the head, we are to be governed by the same principles; but they are more difficult to put in execution; in this case, it is essential to success, that we raise the forehead in the absence of pain; and particularly, if the head has escaped the orifice of the uterus; when this is the case, it requires the introduction of the hand to raise the whole head; this should always be done first, that we may be certain of keeping the forehead sufficiently high, to permit the vertex to descend. After we have raised the head sufficiently, towards the superior strait, we must place the extremities of the fingers against the posterior edge of the frontal bone, and make them serve as a fulcrum, as in the first instance. In doing this, we should carefully avoid pressure upon the anterior fontanelle itself. When the position is rectified, we must withdraw the hand, and let nature perform the rest.

671. I have dwelt upon this case; because, it is one of great consequence, to both mother and child—if it be improperly managed, the latter too often falls a sacrifice; and the former, must incur the risk which always attends embryulcia. For it is one in which the forceps cannot relieve; since, the head cannot be made to leave the pelvis in the direction it has descended to the lower strait; as its large diameter will be parallel to the small diameter of this strait. Turning will be rarely possible, were it resolved upon; since, in the second situation, the person who has charge of the case, and who must be supposed ignorant of the principles which should govern it,* will permit

* The person who has charge of this case is supposed to be ignorant of its mechanism; because, he proposes another remedy for its relief than the reduc-

a great deal of time to pass, after the escape of the waters, under the hope, that every pain will deliver the head, because of its nearness to the opening of the pelvis; he will at this time most probably find the head free from the mouth of the uterus; in which case, turning must ever be forbidden; or the uterus will be so firmly contracted upon the body of the child, as to render this operation impracticable: embryulcia is then the only resource of such a practitioner.

672. I will endeavour to illustrate this subject, by the relation of a case. Mrs. — was under the care of a young practitioner of midwifery, with her fifth child. Her labours were ordinarily rapid, and her health and constitution excellent. She was attacked early in the morning, in the usual manner of her labours; and her accoucheur gave her a promise of speedy relief; her pains were strong, and frequent; the uterus was well dilated; and the membranes burst soon after his arrival. Every expectation was entertained, that the patient would soon be delivered; the head of the child had descended to the inferior strait; the pains were strong, and frequent; but after a short period, the head was found not to advance. Still supposing that nothing could prevent the delivery of a head so *near to the world*, he constantly gave encouragement to his patient, until her patience, and that of her friends, was exhausted—they now proposed a consultation. To this he did not absolutely object; but begged they would wait another hour, before they should resolve; assuring them, at the same time, that it was impossible it should last beyond that time—the hour passed away, without his hopes being realized; and the consultation was again urged; to which he reluctantly consented, from a firm persuasion that it was unnecessary. I was now sent for (six o'clock P. M.); I happened at the time to be some miles in the country; and did not return until after eleven o'clock; and, by the time I saw the patient, seventeen hours had elapsed since the commencement of her labour; which, until this time, had rarely occupied two.

tion of the forehead; or negligently waits, in the hope that the powers of the uterus will effect the delivery.

673. The gentleman in attendance gave the very candid statement related above; with the additional declaration, that he was "at his wit's end." He declared he could not possibly conceive the reason of this very unusual delay, and begged I would examine the patient. This I did; and found the case to be, the too early departure of the chin, from the breast, as represented in the second situation of this presentation. I gave my opinion to the Doctor; and tried to explain the mode of remedying, this mal-position. He undertook the operation, under the persuasion he understood it; and I was anxious he should, as he was a particular friend of the family, and was just getting into obstetrical business. He however pretty quickly abandoned the side of his patient; and earnestly requested, I would do what was necessary. I had the patient properly placed, and introduced my hand under the head of the child, and raised it up to a sufficient height, and then sustained the forehead until a pain came on; the two first pains did not bring down the vertex as I had hoped; owing, to the very firm contraction of the uterus upon the body of the child; I now directed the head more towards the right sacro-iliac junction, and had the satisfaction, upon the accession of the third pain, to have the vertex descend properly—I withdrew my hand; and the head was delivered the next pain, to the great joy of the mother; the safety of the child; and the astonishment of the Doctor.

674. This case was an important lesson to this gentleman; he called upon me next day, and begged me to represent the presentation upon the machine; this I did most cheerfully, to his great delight and satisfaction; he now thoroughly comprehended its mechanism. It may however happen, that after the reduction of the head, and before it has passed through the external parts, some sudden accident may complicate the labour, and oblige us to terminate the delivery immediately; in such case, the forceps must be used. It is also possible, that accident may complicate the labour before the head is reduced; should this be so, it would be best to turn; provided the circumstances we deem essential to its success be present.

c. Cases in which the Face presents.

675. The face may present at the superior strait in four different manners—the most common is, where the forehead offers to the left, and the chin to the right side of the pelvis; 2d, is the reverse of this; 3d, the forehead answers to the symphysis of the pubis, and the chin to the sacrum; the fourth, is the reverse. In face presentations the woman always finds a difficulty in delivering herself; and delivery can only take place, when the head is in this position, in a well formed pelvis. They may therefore be considered, without many exceptions, as essentially bad, or preternatural presentations. Some authors have considered them so exclusively such, as to recommend turning wherever the face offers.* I would not be considered as constantly recommending this practice; yet I am persuaded, that should the third and fourth of these presentations occur, it would be the best practice; especially, where we could have the choice of the time, and condition. Turning is always attended with more or less risk to the child, however favourable the situation of the uterus may be for the operation, or however dexterously it may be performed; I may say the same however, of face presentation; especially, in the two last; and, above all, should the pelvis be rather contracted and the head large; therefore in such cases there is only a choice of evils.

676. It will be perceived, by the reader who may be familiar with the divisions of this presentation by Baudelocque, that I have reversed his order—I feel there is a propriety in this; as I hold it to be a good rule, to place the most frequent of a particular presentation, first, in the numerical arrangement—and I am persuaded, as far as I dare trust my own experience, that the first and second of my arrangement, are by far the most common—nay, I may go farther, and declare, I have hitherto

* Dr. Davis is the latest author that advocates the indiscriminate turning, in face presentations. He directs, “When the face is discovered to present at the brim of the pelvis at an early period of a labour, whether before, or very soon after the escape of the liquor amnii, there can, in my opinion, be no doubt of the preferableness of turning, to all other modes of treatment.” (*Elem. Oper. Mid.* p. 245.)

not met with either the third, or fourth; (the first and second of Baudelocque,) and indeed I entertain some doubt whether they have ever occurred—Baudelocque does not appear to speak from his own observation on this subject; or he would not have proposed the employment of the vectis for the reduction of the vertex—a mode of acting that can never succeed; for it cannot be made to reduce the vertex, even upon the machine; as I have frequently demonstrated to my pupils.

677. The face may readily be distinguished from any other part, by the eyes, the nose, the mouth, and the chin; and its particular situation may be determined by this last feature, and the nose. The indication in these labours, if it is determined to interfere with them, is to bring down the vertex, and place the chin upon the breast. Baudelocque* says, this is effected by operating upon the vertex, rather than pushing up the chin—so far as my experience will justify differing with him, I should declare, that pushing up the whole head before we attempt to bring down the vertex, though the head may still be at the superior strait, is essential to success. And farther, that we should always press the ball of the thumb against the forehead, and urge it upwards, at the moment that we are endeavouring to make the vertex descend.

678. When these labours are terminated by the natural agents of delivery, they are always very tedious and painful; the child's face comes out much swoln and frequently livid; the eyes tumid, and the child itself is often born in a state of asphyxia.

679. The proper moment for acting can rarely be seized, in the cases under consideration; either as regards the condition of the uterus, or the situation of the head; for before the membranes are ruptured, the case is not easily distinguished; and after they are, the uterus is not always sufficiently relaxed to act with facility, or advantage; and by the time it does dilate, the waters may have been so long drained off, as to render the attempt fruitless.

680. In the first and second presentations, we must have the concurrence of the following circumstances, before we at-

* System, par. 1337.

tempt the reduction; first, the uterus must be sufficiently open to permit the hand to pass, with little or no difficulty; second, the head must not have entirely passed the superior strait; third, the waters must have been recently expended. If these advantages combine, after having the woman properly placed, a hand must be passed into the uterus; and the choice of the hand is a matter of the first consequence, to the success of the operation; the governing rule is simple, and easily remembered; namely, the hand which is to the side, on which the vertex is placed; that is, in the first, the right hand must be used; because, when before the patient, it offers to the left side of the pelvis; if the second be the presentation, the left hand must be employed, for the same reason.

681. In the first presentation of the face, we pass the right hand into the uterus in such a manner as shall put the back of the fingers to the posterior part of the pelvis, or before the left sacro-iliac symphysis, and place them on the side of the head, while the thumb is pressed against the opposite side; the head is then to be firmly grasped, and raised to the entrance of the superior strait. When the head is thus poised, the extremities of the fingers are to be carried over the vertex, while the thumb is moved to the centre of the upper part of the forehead; the fingers are then made to draw the vertex downward, while the thumb tends, by its pressure, to carry the face upward, thus executing a compound action upon the head. All this, it should be remembered, must be executed in the absence of pain; if we find, when pain comes on, that the vertex moves sufficiently downwards, and the face upwards, to give assurance it will now descend, we may withdraw the hand, and trust the rest to the action of the uterus. But if, on the contrary, upon the accession of the pain, we find the face still has a tendency downwards, we must be certain that the reduction is incomplete; and we must again and again attempt it, in the absence of pain, if it be necessary—for, under the circumstances I have stated, we are pretty certain of success under a well-directed management.*

* Whenever the waters have been evacuated some time, the operation here described will be embarrassed, by the uterus narrowing itself at that portion of

682. In the second presentation, under the conditions I have stated for the first, we employ the left hand; and act in every respect, as directed for that presentation.

683. Should however the above stated conditions of the uterus be present at the proper time; or should the head have descended through (or nearly through) the superior strait, we cannot hope to succeed by any attempt made with the hand to reduce the vertex; the choice of remedy will then lie between turning, and the employment of the vectis. We should prefer turning, when the waters have not been too long drained off; when the pains are not either very frequent or severe; and while the head is still enveloped in the lower part of the uterus.

684. The vectis may be tried under the contrary condition of things, by passing it up the side of the pelvis, until it pass over the vertex—when it is placed, we must endeavour to raise up the face with the other hand, and prevent the vertex rising at the same time, by a counteracting force exerted by the vectis; this should be performed in the absence of pain, and until the face is found to ascend, and the vertex descend. If these manœuvres succeed in getting the vertex down, we may commit the rest to nature. It may, however, agreeably to my own experience, be practicable to turn, after the vectis has failed.*

685. In the third and fourth species of face presentations, I am persuaded, it would be losing important time to depend upon any other mode of operating, than turning; provided; 1st, the uterus be sufficiently dilated; 2d, the waters but recently drained off; and 3d, the head still easily moveable, at the superior strait. Should these important conditions be absent, it would be perhaps best (but this is purely speculative) to

itself, which corresponds to the neck of the child; and will thus prevent the reduction of the head. This obstacle must not be attempted to be overcome by force—it must be submitted to by letting the head advance with the face foremost.

* Dr. Davis proposes, for the reduction of the vertex in face presentations, a kind of vectis, armed with teeth. The objections to such an instrument, he has proposed himself; namely, the wounds inflicted on the scalp of the child, &c.; and are every way sufficient to prohibit its use. The common vectis, as I have observed, when properly managed, in proper cases, will succeed, as I have experienced.

employ the hand in such manner, as will guide the forehead to the side of the pelvis; or in other words, convert it into a first or second presentation of my division of the face, and then attempt the reduction of the vertex by the vectis, or deliver by the forceps.

d. Presentations of the Head, accompanied with the Hand.

686. The head may present perfectly well as regards its own position, yet may be accompanied by the hand—the presence of the hand can sometimes be detected, before the membranes give way; and when it is found in this situation, it is almost sure to proceed with the head. If the case be under management at this moment, the presence of the hand can rarely create any embarrassment to the well-instructed accoucheur; he knows, that by proper management, it may be easily prevented from descending, so as to occasion any great inconvenience. When the hand accompanies the head, it should be prevented from proceeding—this for the most part is readily managed, by placing the point of the forefinger between the fingers of the child, and preventing its farther descent, by supporting it during a pain; and at the same time, directing the hand towards the face. When this is properly conducted, the head gets under the hand, and makes it retire within the cavity of the uterus.

687. When this case is neglected, by permitting the hand to descend, it may create great inconveniences, especially, in a narrow pelvis: 1st, by obliging the head to turn away from the axis of the superior strait, and making the shoulder present itself in its stead; 2d, by accompanying the head in its descent, and preventing the latter from making its proper turns, that it may escape from the pelvis.

688. The first of these difficulties will be considered under the head of “shoulder presentations,” which see; and the other will require the aid of the forceps—it occasionally happens, that this situation of the hand and arm creates considerable embarrassment, from the fixed situation it gives to the head, as well as the strong, and perhaps dangerous compression which the arm suffers; also, from the absolute necessity

there is to depart from one of the cardinal rules for the application of the forceps, by placing them upon the vertex and forehead; as the following case will show. I was called upon by Dr. Brown to visit a patient, who was under the care of a midwife, and who had been long in labour, in consequence of the arm being included between the symphysis pubis, and the head; the labour had been stationary several hours, as the head could not descend, though she had at first frequent and severe pains, but which were becoming more and more feeble, notwithstanding every possible exertion of the poor woman herself—the arm was very much swollen, the scalp pushed down, while the head was completely transverse, as regarded the pelvis—the head, in consequence of the long absence of the waters, could not be pushed up, therefore turning was impracticable. After having the woman properly placed, I applied the forceps so as to embrace the vertex and forehead—a moderate force was sufficient to bring the head through the superior strait; this gave so much freedom to the arm, as to induce me to withdraw the instruments, and re-apply them *comme il faut*; the head was soon disengaged; and the mother and child did well.

689. It must be recollected, that the head is not the only part, which the hand may accompany; it may present with the breech, the knees, or the feet; when this happens, it rarely creates any obstacle to delivery *per se*, though it may embarrass, if improperly acted upon, either accidentally or designedly, by an ignorant practitioner. Whenever the hand is perceived at the superior strait, it should be treated as above directed, though the attempt to retain it within the uterus may sometimes be unavailing, as it frequently denotes the presence of the shoulder at the upper strait.

SECT. XI.—11. *Exhaustion.*

690. The capacity to support the toil of labour, will differ in those who may be subject to it, either from original stamina, or the severity of the process itself. Hence, the most robust woman, as well as the most delicate, may become exhausted

from the force or the long continuance of labour—the exhaustion now alluded to, is not the mere loss of strength in the muscular system, but a state of inertia of the uterus itself. Both these conditions may combine; or they may exist separately, and independently; when combined, they are almost always accompanied with syncope; of this, I have already treated; when they exist separately, our conduct must be regulated by the system which suffers. Should there be a mere loss of muscular strength, and the uterus preserve its powers, it will offer no indication as regards delivery; but should the powers of the uterus be upon the wane, or entirely suspended, though the woman possess great muscular vigour, it should warn us not to confide too long in this general appearance of strength, lest the uterus itself may be subjected to casualties, independently of temporary loss of vigour.

691. This situation of the uterus may arise from very different causes, and require very different modes of treatment; first, over distention from an excess of the liquor amnii; when this is the case, we find the pains returning at rather uncertain intervals; and confined to the uterine globe; very little of that bearing down sensation, which accompanies the healthy protrusive effort; the membranous bag with the waters not very tense during pain; and a general restlessness, and anxiety, when pain has abated. In this case the loss of power is only relative; and though it may have all the appearance of *absolute* weakness, and is frequently mistaken for it, yet it is not truly so; as stimulants but increase the mischief, by exciting the arterial system, and goading the uterine fibres to more frequent, yet more feeble efforts. The remedy in this case, is to remove the cause; namely, the liquor amnii, as the following case will show.

1796, May 16th: Mrs. —, in labour with her first child, and of good constitution; was taken with feeble, but pretty frequent pains in the night, which she bore without disturbing her family until the morning, at which time she sent for her midwife. As the pains were feeble, and transitory at the time of the arrival of the midwife, she told her her labour was yet too weak to bring her child; but she would call again in the

course of an hour—she did so; and found things pretty much in statu quo; she again took her leave, and did not return until towards the evening; and then in consequence of a summons from the patient, who had become very uneasy and restless; enjoying no interval of comfort, though the pains had become slower. She now examined the patient; who had at this time what is called a plentiful show, and a relaxed os uteri; but as the pains made very little impression upon the membranes, she concluded this could only arise from *weakness*; she accordingly prescribed strong cinnamon tea, and a stimulating injection. The injection afforded a temporary relief by discharging a large quantity of hardened fæces; but the pains were still weak, though recurring frequently. The patient became feverish, with much headach and thirst; the midwife, and the friends of the patient became alarmed, and I was requested to visit her.

692. On my arrival, I received the above account—I waited a few minutes to observe the nature of the pains, as well as to ascertain other particulars. I examined the uterine globe during pain, by placing my hand upon it, and found it to harden but little; the uterus was enormously distended; so much so, as to have the fundus at the scrobiculus cordis; the pulse was quick and full; there was also considerable headach. I examined the state of the uterus per vaginam, and found, as the midwife had declared, a relaxed os uteri; or at least a yielding one, and very little pressure upon the membranes during pain. It immediately occurred to me, that this appearance of uterine exhaustion was but relative; and during the next pain, I ruptured the membranes; this gave issue to a prodigious quantity of water; frictions were instituted upon the abdomen; in the course of half an hour, the pains began to increase; and in half an hour more, the patient was safely delivered, after a labour of eighteen hours, which might have been terminated, by proper management, in six.

693. This appearance of exhaustion in the uterus, may also arise, from an engorgement of this organ; it will, like the one just mentioned, simulate weakness, or want of power, as if there was positive inertia present—this condition may be known, by its having come on kindly; but the uterine powers are found

to diminish gradually; the os uteri disposed to dilate; but the presenting part, is not protruded during pain; and the pain felt over the whole abdomen. The woman feels a sense of suffocation, or sinking; the pulse is hard, full, or depressed; and the pains irregular, both in force, and frequency. This case is only to be relieved by blood-letting; the following case, selected from a number of the kind, will illustrate this situation.

1792, August 17th, Mrs. —, aged twenty-eight years, in labour with her first child: pains commenced regularly and pretty severely, and continued to be so for some time; they then became desultory in frequency, and less in force—the midwife, before I saw her, gave her some stimulating drinks, which increased her unpleasant feelings; as a sense of suffocation, heat and pain over the whole of the abdomen, sickness at stomach, &c. without augmenting the force or frequency of the pains. When I saw her, she was labouring under all the distressing symptoms just mentioned; together with a depressed pulse; frequent sighing; great uneasiness, and very apprehensive; the mouth of the uterus but little dilated, though quite unresisting, when an attempt was made to stretch it; its edges were thickened, but not tense; during pain, very little impression was made upon the child; and the mouth of the uterus rather contracted than opened. As much oppression about the præcordia attended, together with great heat in the abdomen, she was ordered to lose blood. About twenty ounces were taken before the oppression and heat were much diminished; but as these were relieved, but not removed; and as the pulse acquired vigour by the operation, I was induced to continue the bleeding, until these unpleasant symptoms should subside; this happened upon the loss of about ten or twelve ounces more of blood. The pains now increased so much, that in about twenty minutes, she was safely delivered.

694. There is another variety of this exhausted, or rather passive state of the uterus, which if not well understood, may mislead—it is, where labour commences with the usual precursors, such as the subsiding of the abdominal tumour; the secretion of mucus; forcing, or bearing down pains; and thus giving promise of a speedy delivery. After these favourable appear-

ances have continued a longer or shorter time, the pains cease altogether, or nearly so, without evident cause; and the whole labour seems to be at an entire stand. The pulse, in this case, is very little disturbed; but a train of nervous symptoms supervenes; such as palpitation of the heart; great oppression about the præcordia, with a sense of suffocation, if the patient attempt to lie down, and a disposition to syncope, if she rise up. The os uteri is well dilated; and the membranes remain entire.

695. This case excites much alarm; and is not unfrequently treated by stimulating medicines, or liquors, by ignorant practitioners, to the injury of the patient. This condition of the uterus is peculiar; and requires the administration of such remedies as may have a specific action upon its fibres; such as the *secale cornutum*; and is one of the happiest cases, to illustrate its powers, as the following case proves.

1824, March 14th, I was called in haste to Mrs. —, whom I found perfectly free from pain, on my arrival. I was however informed that her pains had been frequent, and strong, previously to sending for me; indeed so much so, that they feared I should not arrive in time. She experienced pain, particularly while lying on the bed; to relieve which, previously to my coming, she arose; and from that moment, she was easy. She complained of a most distressing pain at the lower part of the sternum, with a sense of suffocation, and palpitation of heart. I waited half an hour, for the return of uterine contraction; but it did not take place. She was requested to lie down, in hope it would produce their renewal, as they had been severe while she was in a horizontal posture—she complied; upon examination, the os uteri was found well dilated, and the head occupying the lower strait; and the membranes entire. I waited another half hour; but pain not returning, a scruple of the ergot was given; in fifteen minutes the pains were briskly renewed, and she was soon after safely delivered of a healthy child.

696. Exhaustion, however, may be positive; and may be occasioned by severe, and long-continued exertion. In this case, the uterus ceases to contract, or contracts so feebly, as

not to advance the labour. When this is so, the general strength of the patient fails also—she becomes listless, and indisposed to exertion; she almost always sleeps between the slight pains, if they exist, or if they do not, she continues in an uneasy and disturbed slumber, until she may be aroused by the anxiety of her friends, or by officiousness in offering her something to “refresh her.” The skin is almost always damp, or even sweating; the pulse frequent and small; the countenance pale and haggard; and the stomach oftentimes much disturbed.

697. The original cause of inertia of the uterus, is very frequently owing to the rigidity of the os uteri, or external parts retarding the labour, until the uterine powers are expended, in the attempt to overcome it—when this happens, the relaxation so much desired takes place, from both general and particular weakness; but the woman derives no advantage from the kindly opening of the os uteri, or long looked for yielding of the external parts; for she is now deprived of that energy, so necessary, to profit by these changes. It is in vain to give stimulants, or waste important time in waiting for the restoration of uterine power—we should, however, try the ergot; and, should this not renew the uterine forces, we must turn, provided the uterus is sufficiently relaxed; the membranes entire, or the waters but recently expended: and the head of the child still enveloped in the uterus. If the head has left the uterus; or occupies the lower strait, and is not easily moveable in the pelvis, we must use the forceps.

698. I have been obliged, under the head of “Exhaustion,” to give examples that were not in strict conformity with the subject in question; namely, where “a natural labour was complicated, and required manual assistance.” But they are of an important character, and could not perhaps be classed under any better head. Hitherto, so far at least as I know, every species of inertia has been treated in the same manner; the distinction I have made, I think, deserves attention.

SECT. XII.—12. *Hæmorrhage from other Parts than the Uterus.*

699. It sometimes happens, though rarely, that a bleeding of an exhausting kind, as from the stomach, bowels, or lungs, may oblige us to finish a labour artificially, that might have terminated naturally. When a bleeding accompanies labour, which if too long continued would exhaust the patient, we should inquire, first, what agency the labour has, in either its production, or its continuance; and second, how far immediate delivery would contribute to arrest it. If we are satisfied upon these heads, and conclude, that the only chance for the woman, is delivery, we should proceed to it, without further loss of time. We should turn, when the uterus is dilated or dilat-able; when the membranes are entire, or they have but lately given way—use forceps when the uterus is strongly contracting on the body of the child, and the waters long expended: or when the head is low in the pelvis.

CHAPTER XVI.

RULES FOR CONDUCTING A PRETERNATURAL LABOUR.

700. UNDER this head, I shall only consider the rules proper for conducting a preternatural labour, where the hand is sufficient alone to terminate it, or will enable the woman to deliver herself. As preternatural labours, strictly so called, have nothing in themselves which declare their nature, we cannot possibly rely upon any symptoms to point them out; we must therefore depend solely upon an examination per vaginam, to satisfy ourselves of their nature: but we cannot always determine with sufficient certainty the exact position of the child, until the membranes have given way; it is therefore in general necessary to wait until this takes place, before we can decide on the nature of the presentation.

701. In the accidental preternatural labour, we must determine upon the necessity of interfering, according to the extent or severity of the accident which may complicate it; and not by the good or bad position of the child. We therefore, in such cases, have to regulate our conduct almost exclusively, as regards delivery, by the condition of the os uteri—should it be unfavourable to operating from the smallness of its opening, or its rigidity, we must, for the time being, abandon the idea of entering it to turn, or to effect any other important change; since, it would require a force that would be wholly incompatible with the safety of the woman, or the preservation of the child. In the meantime, we temporise in the best manner the nature of the accident which has complicated the case will permit, by prescribing such remedies as may be most proper, or adopting such means as may best suit the exigency. But on the contrary, if the os uteri offers no difficulty, we have only to consider the best moment to act, when we have the choice in our power. This choice must be governed by general, as well as particular rules; before however entering upon either of these, it will be necessary to point out the proper position of the woman, that both may be the better understood.

Position of the Woman for Turning.

702. When necessity obliges us to terminate a labour, either well, or ill begun, the woman should be placed so as to give the least possible hinderance to the operations of the accoucheur—this is agreed upon by all; but there exists a diversity of opinion, what that position is. Some recommend the side; others the knees, and others the back. I coincide with the latter; as it has always appeared to me as the best we can adopt, for either convenience or advantage; I therefore constantly direct the woman to be placed upon it, so as to give the greatest possible freedom for action. This position should be made as comfortable as the nature of things will permit; I therefore order the bed to be made in the following manner:—

703. 1st. A mattress, if at hand, must be placed so as to reach over the edge of the bedstead, to protect the woman from

being injured by its hardness; 2d. The mattress itself must be covered with a folded blanket, or sheet, that it may receive no injury from the discharges; 3d. Two chairs should be placed to support the feet of the patient, at a proper distance apart; 4th. The feet and knees are to be steadied by an attendant sitting on each chair; 5th. An old rug, blanket, piece of carpet, or oil-cloth, should be spread upon the floor, immediately below where the patient will be placed, to secure the floor from injury; 6th. A pot, or basin should be at hand, that it may be placed upon the floor, below the patient, after she is fixed upon the bed for delivery, to receive whatever may drain from her; 7th. The patient must be placed upon the mattress in a horizontal posture, with her lower extremities over the edge of the bed; so as to leave the perinæum and coccyx free of the margin of the bedstead; 8th. She should be covered, to be protected against cold, as well as to comply with the rules of decency—so much regards the patient. On the part of the operator; 1st. All parade should be specially avoided, as well as formidable preparation; the idea should never be given that the operation in question, is one of difficulty or hazard; 2d. If within command, he should put on, after he has taken off his coat, a loose bed-gown with large sleeves, which must be slipped up, when on the point of operating; this will prevent the exposure of bare arms, which are always unsightly both to patient, and by-standers; especially, after operating; 4th. A folded sheet should be at hand, that it may be thrown over the lap, if the operator sit; but I have ever found it more convenient to kneel upon a pillow; which position I would recommend; especially if the bedstead be low; 5th. The hand should be lubricated with lard or fresh butter, as well as the vagina, and external parts of the woman, before an attempt be made to pass the hand; 6th. The time of pain should be chosen to introduce the hand; which should be made into a conical form, that it may enter, and dilate the vagina the more certainly, and easily; 7th. After the hand is in the vagina, the absence of pain should be chosen, to pass it into the uterus; 8th. The hand should be passed in the most gentle and gradual manner, that as little pain may be given, as circumstances will permit,

as well as not to provoke untimely contractions of the uterus: 9th. If the hand becomes much cramped or fatigued, it must be withdrawn, that it may recover; 10th. The operator will be much aided, while searching for the feet, and in bringing them down, by the other hand fixing the uterus by a gentle, yet sufficiently firm pressure, from time to time, externally upon the fundus; thus giving advantages to the hand within, that could not be procured without it; 11th. A proper selection of the operating hand must be made, either not being equally proper in all cases; 12th. The hand should be passed immediately to that part of the uterus, where the feet are expected to be; and this must be determined by the presentation, or situation of the child.

704. When the operator has gained the feet, he should, 1st, grasp them firmly with the hand, but should always, in doing this, place a finger between them, to prevent injury, from compression; 2d, when practicable, both feet should be acted upon at the same time; 3d, though sometimes practicable, nay easy occasionally, to deliver by one foot, it should never be done but from downright necessity; and this can occur but rarely; 4th, in bringing down the feet, they should be conducted in such manner as will make the toes constantly look towards the abdomen of the child; or, in other words, make them pass as it were over the face; this rule is most important, and should never be neglected, if we have any regard for the safety of either mother or child; if infringed, the mother may suffer a laceration of the uterus, and the child certain death, by an injury done the spinal marrow; 5th, should it only be practicable to bring one foot to the entrance of the vagina, let it be secured by a fillet; while search is made for the other; 6th, no attempt should be made to turn the child during a pain, lest the uterus suffer laceration; 7th, but after the feet are without, every advantage should be taken of pain, if it exist, to facilitate the delivery; 8th, the whole act of turning should be considered as one of necessity, rather than of choice; therefore, where it is proper to attempt it, it is, I believe, always proper to finish, and not trust the farther delivery of the child to the powers of nature, as some have recommended; 9th, the opera-

tion of turning should be performed slowly, and steadily; especially, if it be attempted in the uncontracted uterus, or immediately after the evacuation of the waters;* 10th, difficulty is frequently experienced in bringing down the breech, when the feet are in the vagina, owing to the head sinking in part, into the superior strait; when this is the case, the head should be raised, while the feet are drawn downward; this is easily managed, by applying the thumb against the forehead of the child, and forcing it upward, while the fingers which are grasping the feet are made to draw them downwards;† 11th, when but one foot can be seized at a time, care should be taken that it belong to the side which the hand has passed over; otherwise, a severe twist will be given to the body of the child, and most probably defeat the attempt to bring it down; 12th, the feet should be brought through the external parts in such manner, as will place the toes towards the anus of the mother; and when the legs are delivered as far as the knees, they should be wrapped in a piece of dry cloth, and the thighs taken hold of with the same, and gently drawn downwards, until the nates are entirely without; the hips should then be taken hold of, and the abdomen drawn through, until the umbilicus appears; 13th, when the umbilicus is exposed, a loop of the cord should be drawn without the vulva, that it may not be injured by being too severely put upon the stretch; to do this in the best manner, a couple of fingers should be slid along the cord two or three inches, and the part of the cord above the fingers should be gently pulled by the upper finger, while the portion of cord next to the child should be prevented from being stretched, by pressing it and retaining it, or rather pulling it towards the umbilicus by the thumb, and lower finger; while the upper finger draws down a portion of it, if it be sufficiently loose, by stretching itself along the upper part of the cord:

* This rule should never be violated, as the too sudden emptying of the uterus may occasion several accidents, of a serious kind; as, inversion of this organ, or severe hæmorrhage.

† Baudelocque, par. 1302, declares this double action to be impossible, at one and the same time; but I know the contrary, from frequent experience; and have very often demonstrated it to my pupils upon the machine.

14th, if the cord does not descend, or cannot be made to do so by gentle means; and if there be reason to fear it will suffer, if farther stretched, it is thought best to cut the cord; Baudelocque says without applying a ligature, but I should think it best to apply one; 15th, when the child is freed from the restraint occasioned by the cord, or if none exist, and it is delivered beyond the umbilicus, it should be made to pass through the arch of the pubes with its spine looking towards, or pressing against, either the right or left leg of the pubes, that the head may enter the superior strait obliquely; this must be done by a little turn of the body, if it does not place itself in this situation as we continue our tractions downward. Little difficulty is experienced in delivering the child thus far; but its progress is interrupted by the axillæ appearing at the vulva; 16th, when the axillæ appear at the os externum, the one next to the sacrum, should be first delivered by passing a finger or two upon the point of the shoulder, and pressing it pretty firmly downward, and then tracing the arm to the elbow; this I endeavour to bend, by pressing on its internal surface exactly opposite the joint, and at the same time, urging it downwards, and forward, to the face of the child, where it will almost always disengage itself, and fall into the cavity of the vagina; from whence, it is easily delivered by hooking it forward, with the point of the finger—if the child be large, or the pelvis small, it is best to raise up the body of the child towards the abdomen of the mother, before we attempt the delivery of the first arm; if the pelvis be large, or the child small, this is not necessary; 17th, the second arm is now to be delivered; this is almost always more difficult than the first, and sometimes extremely so, if the head and arm are both engaged, in the small diameter of the superior strait; or when the arm has passed behind the neck of the child; this difficulty however is overcome by a very simple process, which I do not remember to have seen recommended by any one for this purpose; but which has always, in my hands, been successful—this is, when the head and arm are thus situated, to turn the shoulder of that arm, to that side of the pelvis, to which the face of the child looks, and it will instantly become disengaged; it must

then be brought down as directed for the other; 18th, if the head should be too high to deliver the shoulders as directed, it should be made to descend lower in the pelvis, by pulling at the body, provided this can be done safely to the child; if this cannot be done, let the arms be brought down first; 19th, should the head be so low as to press the arms strongly against the margin of the inferior strait, it must be pushed backwards and upwards, that the arms may have more freedom. When the arms are delivered, there remains the head to be disengaged; for the liberation of which, we must attend to the following rules:

705. 1st. Before any attempt be made to extract the head, its situation should be determined by a careful examination; if it be at the superior strait, the face should be at one side, that the great diameter of the superior strait, and that of the head, may correspond; if it be not in this position, let it be so placed, by pressing the side of the face with a couple of fingers—when thus adjusted, it will readily descend by a small force applied to the body; but this must be in the direction of the axis of the superior strait; 2d. If the head be at the inferior strait, the face should be in the hollow of the sacrum; if not thus situated, rectify the bad position by pressing against the cheek, and carrying the face to that place; or rather, so that the face shall lie upon the perinæum; when thus, the great diameter of the head, and that of the lower strait, will correspond; 3d. The body of the child must now be carefully supported, by passing the arm beneath its body, and allowing the legs to straddle the arm; while the fore, and middle fingers, are passed one on each side of the neck, which will not only give support, but permit a firm hold when tractive force is required, to deliver the head; 4th. When the head is in this situation, it is almost always without the uterus; we cannot expect, therefore, any aid at this time from the contractions of this organ—the woman must now be solicited to employ her voluntary powers of bearing down, that too much force need not be employed, by acting on the body of the child; 5th. To co-operate with the exertions of the mother, we must draw the body of the child nearly upward, while we press with two or

three fingers upon the occipital bone, so as to carry it downward, and disengage it from behind the pubes; this last direction I consider as one of great importance—by attending to it, I have secured safety to the child, which would have been lost without it; 6th. Advantage is sometimes gained by depressing the chin, but never by acting upon it—the object in depressing the chin is, to prevent its hitching in the folds of the vagina, and thus creating delay and difficulty.

706. It will be readily seen, that in deliveries of this kind, the child must run a constant risk, whenever there is the least delay to the delivery of the head: this danger arises from, 1st. The compression of the umbilical cord; 2d. The compression of the head and chest; and 3d. From a severe extension of the neck, doing mischief to the spinal marrow. With a view to remove these latter dangers as much as possible, we should never attempt to deliver the body of the child rapidly or by main force; the whole of this difficult, but highly important process, should be conducted coolly, and deliberately; making all our endeavours co-operate with those of the uterus—pains should always be waited for, though they may be far apart; as much of the mischief which constantly threatens the child, is removed by their forwarding it, instead of its being the effects of force applied to its body. Should there be no pains, we are then obliged to act without them; but we should endeavour to imitate them, by permitting intervals of rest, and soliciting the efforts of the woman.

707. In the hurry, and confusion consequent upon a delivery of this kind, a young practitioner is apt to forget the useful caution of not turning the body of the child, upon the head, beyond what the spinal marrow will bear; but this important direction must not be lost sight of, in attempts to deliver the head by acting upon the body—I once saw, in the hands of a midwife, two complete turns of the body at the expense of the neck; I need not mention the result of such ignorance.

CHAPTER XVII.

THE MODE OF OPERATING IN EACH PARTICULAR CASE OF HEAD PRESENTATION.

708. HAVING in the preceding pages pretty fully detailed the general modes of conducting the operation of turning, I shall now consider it, and the other methods to be pursued, in each particular presentation of the head, when rendered preternatural, by some accident complicating the labour; or where the presentation itself, renders interference proper and useful.

SECT. I.—*First Presentation.*

709. I have already given the characters of the different presentations of the vertex; therefore I shall not repeat them. I must premise, that it is very often essential to the success of the operation of turning, that a proper choice be made of the hand. I would wish to impress this truth upon the recollection of the inexperienced practitioner; and, as the rule is extremely simple, there is no excuse for its neglect. That hand should be employed, the palm of which will look towards the face of the child; therefore, in the presentation under consideration, it will be the left hand.

710. A necessity for turning existing, the woman is to be placed, as already directed for preternatural labours; (702, &c.) and the left hand, properly prepared, must be introduced into the vagina, with the thumb looking towards the symphysis pubis; the hand must be placed, so as to grasp the head with the fingers on one side, and the thumb upon the other—it is then to be raised in the axis of the superior strait, and placed in the left iliac fossa, where it must be retained by the wrist and fore-arm, while the fingers are made to travel over the left side of the child, which will be towards the posterior part of the uterus, until they get possession of the feet—these are to be brought, as already directed, as far as the middle of the

vagina: when thus far, it frequently happens, that their farther progress is arrested by the breech not descending; and the breech is prevented from descending, by the head having slipped from the iliac fossa, where it had been placed in the commencement of the operation. When this is found to be the case, the head must be removed by the compound action of the hand already described; (704, 10th) when this is done, the breech will pass into the superior cavity of the pelvis, without farther difficulty; and when the feet appear without the vulva, such direction should be given to the breech, as will place the breast of the child towards the left sacro-iliac symphysis; or, in other words, obliquely as regards the superior strait; this is effected by acting for an instant only upon the foot that is immediately under the pubes, and finish the delivery as directed.

SECT. II.—*Second Presentation.*

711. In this presentation the right is the proper hand, for the reason already assigned; (709) it must be passed up until the head is placed into the right iliac fossa, as before directed for the first presentation; the right side of the child must be passed over; the feet brought down, and the labour finished as above.

SECT. III.—*Third Presentation.*

712. I have already remarked, that this presentation may be bad in itself, and render a labour either difficult, or preternatural, where measurement of the pelvis is rather below the healthy standard; or the head excessively large; but that it might offer no more difficulty than the first, or second, where there obtained a proper relation between the head and pelvis.

713. Either hand is eligible in this presentation, as will be readily perceived, by recalling to mind the rule upon this subject—should the circumstances accompanying the labour (be they original, or accidental) oblige us to have recourse to turning, we may employ that hand, of which we have the greatest command. Should nothing but the position of the head, with a slight diminution of capacity in the antero-posterior diam-

ter affect the labour, we may sometimes enable the woman to deliver herself, by two or three fingers applied to the side of the head, so as to carry the vertex towards one of the acetabula—to the right, if we use the right hand, and to the left, if we use the left—when thus placed, we may commit the termination of the labour to the natural efforts, provided, no other circumstance complicate the labour.

714. Should this mal-position of the head not be discovered in time; and the uterus be contracted firmly on the body of the child, the fingers, (as directed above,) will not be sufficient for the removal of the occiput from over the pubes; we must, in this case, introduce either hand so that the palm will look upwards in the pelvis, and then take hold of the head, as already directed it should be seized; raise it in the direction of the axis of the uterus, and when a little freed from the superior strait, turn the face to the side, contrary to the name of the hand employed; then trust to the powers of the woman, for the rest, provided these appear sufficiently efficient.

715. When, from the nature of the case, we are obliged to turn, we carry up the head, and give it the turn just mentioned; and where practicable, make the shoulders take the same course; the hand will point out the side to which the face must be turned; then finish the delivery, as if we had interfered with a first or second presentation. If we cannot change the shoulders by acting immediately upon them, we may give the proper turn by pulling for a little while upon the right leg, if the face is turned to the left side, and upon the left, if turned to the right side.

SECT. IV.—*Fourth and Fifth Presentations.*

716. These presentations, in consequence of the forehead coming under the arch of the pubes, are always more painful and tedious, (*cæteris paribus*,) than where the vertex offers to this part; but in a well formed pelvis, unless some accident complicate the labour, we are seldom or never obliged to turn for position alone. Should, however, any circumstance render it necessary, we may turn in these cases, with as much facility

as if they were the first and second vertex presentations; and we conduct the process precisely in the same manner; that is, in the fourth, the rules for turning are exactly the same as has been already directed for the second, presentation, and in the fifth it is conducted as if it were the first—it is important, in these cases, that the leg which offers under the pubes should be more acted upon than the other, that the breech may take a proper position in the superior strait.

SECT. V.—*Sixth Presentation.*

717. I believe it best in this presentation to turn, if the head and pelvis have but their ordinary relation; and most certainly so, if the latter is a little contracted, or the head of more than ordinary size, provided we are called early, that we may take advantage of the opening of the membranes; or if they have been recently discharged. If the head be small, it will come along without much difficulty; and if but very little smaller than the pelvis, advantages might be derived from turning the occiput from the projection of the sacrum, as recommenced by Baudelocque, and as once practised by myself (see 620); but this presentation so rarely occurs, that almost all I can say upon the best mode of treating it, is derived from analogy, and reasoning. After the head has passed the superior strait, it can offer no greater difficulties than the fourth or fifth presentation; but, like these, it may require the application of the forceps; for, if the waters be long drained off, and the uterus strongly contracted on the child, turning would be extremely difficult, if not impracticable; as happened in the case I mentioned having succeeded, by turning away the occiput.

718. When turning is attempted in this case, either hand may be employed, at the option of the operator; the head must be seized as directed for the third presentation, and converted into the fourth or fifth. Baudelocque recommends it being reduced to the first or second; I sincerely believe this to be impracticable; I am certain it cannot be done if the waters have been long evacuated; and if it have succeeded, it must be at the moment they have expended themselves, and while the head

yet enjoyed freedom, at the superior strait. The turning must be finished, as if the head originally presented in either of these positions.

719. Having spoken of the modes of terminating preternatural labours where the hand alone was sufficient, I shall now proceed to the consideration of the forceps as a means, where the hand is not capable of performing it, or where it is not proper to employ it—for this purpose, I shall commence with a general consideration of these instruments; and afterwards point out the modes of application, in each particular case; this will bring me to the third part of the work.

PART III.

WHERE IT IS NECESSARY TO USE INSTRUMENTS WHICH DO NO INJURY TO MOTHER OR CHILD.

CHAPTER XVIII.

OF THE FORCEPS.

720. I SHALL consume no time in tracing the history of these important, but too frequently abused instruments; nor point out the alterations which caprice, or the affectation of improvement, have imposed upon them—I shall merely declare my preference for the long French, or the Baudelocque forceps. An experience of many years, I think, justifies my choice; my election was not either hastily or heedlessly made; I think I duly weighed the merits of each of the instruments; and the preponderance, was in favour of the long. I had no theory to support; and had, therefore, no prejudices to overcome; my sole desire was to determine which of the two, would best answer the ends for which they were designed—trials, often repeated, have led to the conclusion, that there is no situation of the head which can be delivered by the short forceps, that cannot, with *at least* equal certainty, be relieved by the long; but that there are situations of the head, which the long forceps can deliver, where it is entirely impossible to relieve, by the short—this, in my estimation, is conclusive. See Plate XIII.

721. I shall briefly state the objections, which experience has suggested, against the short forceps; for a number of years they were the only forceps I employed; and were only abandoned from a conviction of their inferiority to the long. First,

they can only be employed with advantage, when the head occupies the lower strait. Second, when it is required to deliver from the superior strait, or above it, neither their length, nor their form, will permit their application; we are then obliged to use the long; but the converse of this never happens.* Third, from the shape, and shortness of their handles, they become very inconvenient to the operator; forbidding, from these causes, the application of a sufficient force, to overcome the resistance. Fourth, their mode of union is such, as to render them extremely inconvenient to the operator, and oftentimes very painful to the patient, by including while locking, either a portion of the soft parts, or of the hair of the pudendum; thus creating a great deal of pain.

722. In favour of the long, I may state, that no one of these objections, attaches to them; they can be used in any position, or distance of the head within the pelvis; that the form and length of their handles, give great and decided advantage to the operator; rendering his exertions more effective, and much less fatiguing; their mode of union obviates the very serious objection urged against the short; for they lock without the vulva when the head is high; and remote from it, in lower positions—besides, they unite in themselves, the forceps, the lever, and the blunt hook.

SECT. I.—*General Rules for the use of the Forceps.*

723. We may divide the general rules for the use of forceps, into, *a.* Those which regard the woman herself. *b.* Those which respect the uterus and soft parts. *c.* Those which refer to the application of the instruments, and their action on the child's head; and *d.* The mode of acting, after they are applied.

* Dr. Davis seems to entertain similar notions of the utility of the short forceps in certain cases, and I shall avail myself of his observations on this point. He says, "What I wish at present to insist on, is the absolute unsuitableness of the instrument known in this country by the name of the short or common forceps, for the relief of cases of impaction, from disproportionate size of the fetal head within the pelvis, on account of a general deficiency of space within its cavity." (*Elem. Oper. Mid.* p. 141.)

a. Those which regard the Woman.

724. Position is important to the application of the forceps; but, as regards the particular situation of the woman for delivery, there is a diversity of opinion, between the British, and Continental practitioners—and the same may be said of the different accoucheurs in our own country; depending very much upon the school in which they have been educated, or the authority, they are in the habit of following. The British practitioner almost invariably directs his patient to be placed upon her side, with her hips near the edge of the bed:* while the Continental accoucheur, has her placed upon her back.† It is, perhaps, not very difficult to explain the cause of this difference—the British practitioner never, or but very rarely since the days of the well-instructed, and judicious Smellie, attempts to deliver the head from the superior strait; while many of the Continental accoucheurs do—in the first, the lateral position of the woman is perhaps, as proper as any; but in the second, it would be impossible to deliver from the superior strait; now, as the position of the back enables the practitioner to deliver from any part of the pelvis, it should always, I think, be preferred; especially, as the relative situations of the head, and pelvis, will be better understood by the young practitioner; for he will have the symphysis pubis as a mark, by which he can determine every other part of the pelvis; this he cannot so exactly do, when the patient is on her side.

725. Therefore, when practicable, I would recommend she should be placed upon her back, as directed for turning (702, &c.) both for convenience and safety. I say when practicable; for it is not always so; since, in cases of extreme exhaustion, of flooding, of convulsions, &c., we sometimes cannot move the patient, to be thus placed; but we can always turn her upon her side; or if the head be very low, and the patient is on her back when interference is necessary, she may remain so; but, when we can command position, I repeat, I prefer placing the woman upon her back, with her perinæum free over the edge of the bed.

* Denman, &c.

† See Baudelocque, &c.

726. Before we proceed to the use of these instruments, we should apprise the friends and the patient, of their necessity—it rarely happens, that the patient is alarmed at this alternative; a very short explanation of the mode of action of the forceps, always satisfies her; we have only to say, that the natural powers are insufficient; that the situation of the child requires immediate relief, as its longer continuance in the passage might be fatal. But at the same time, we must not give any positive assurance of its safety by the operation; though its chance should be represented as increased. Cause her to think the instruments an artificial pair of hands, whose use is to clasp the head of the child, and thus promote its delivery; and she becomes at once reconciled to their employment.

727. We should take care, before we employ the forceps, that the bladder be discharged of its urine, either by the catheter, or by a voluntary effort of the patient; and that the rectum be unloaded, by a simple injection, if it has not been emptied a short time before; also that the vagina, external parts, and instruments, be well lubricated by hog's lard, or soft pomatum; and the latter warmed by being placed in warm water.*

b. The Condition of the Uterus and soft Parts.

728. The forceps should never be employed, whatever may be the emergency, before the os uteri is sufficiently dilated, or readily dilatable, and the membranes ruptured. Were we to attempt their application before this period, we should cause much mischief, if not altogether be foiled in our enterprise. We must, therefore, wait until this has taken place; but we should endeavour to promote this condition by every means, which may be compatible with the existing situation of the woman. This may sometimes be by blood-letting, as in convulsions, &c. or by laudanum, as in certain kinds of exhaustion, &c. but never by force. We are told, that the application of

* In warming the forceps, care should be taken, that the water is not too hot. it will be sufficiently warm, if the hand can just be borne in it. It is proper, even in warm weather, to observe the precaution of warming the forceps.

the belladonna to the os uteri has been useful for this purpose; but of this I have no experience.*

729. Should the membranes be entire at the time we are about to operate, we may very readily effect their rupture by artificial means; but this should not be done until the os uteri is in proper condition for the operation. It would be desirable, that the external parts should also be disposed to yield readily before we commence; but this is of much less importance, than the relaxation of the os uteri; for these may be dilated gradually by the instruments, or made to yield by the application of lard, or soft pomatum.

c. Application, and Mode of Action of the Forceps.

730. The proper application of the forceps, in each situation of the head, has ever been considered as an achievement of difficulty. It requires, a complete knowledge of the various divisions of the pelvis; an acquaintance with the construction of the child's head; and the mode of detecting its precise situation, in the cavity which contains it. It will also be necessary to the success of the operation, that the practitioner shall well understand the construction and mode of action of his instruments, and have by practice acquired a facility in placing them. It has been considered by Dr. Denman, as uncertain, whether the art of midwifery has been benefited, or injured, by the introduction of instruments into its practice.† That much mis-

* Chaussier recommends the extract of the belladonna, with great confidence, in cases of rigidity of the os uteri. He causes it to be incorporated with some soft ointment, and applied by means of a particular syringe to the circle of the uterine orifice. In half an hour, or in forty minutes at farthest, after its application, he declares, the orifice of the uterus becomes so much relaxed, as to offer no farther resistance to the efforts of the body and fundus. (*Considerations sur les Convulsions qui Attaquent, les Femmes Encientes*, p. 22.)

† I am convinced, that if the forceps be judiciously employed, the lives of very many children may be saved; and that the death of the mother is a rare occurrence. Dr. Davis declares, "In my own practice, as one of the physicians to the Maternity Charity of London, which is, beyond comparison, the most extensive obstetric institution in Europe, I have the satisfaction of being able to assert, that I have never incurred the misfortune of losing a mother in consequence of a forceps operation." (*Flem. Oper. Mid.* p. 274.)

chief has been done by the ill-judged, and worse conducted application of the forceps, I have had reason to know; but the abuse, or wrong use of a thing, by no means furnishes a logical conclusion against its use. Indeed, were we to admit this reasoning, in almost any concern of human life, we should have a most reduced catalogue of real benefits; and, were it legitimate to urge it in the practice of physic, or surgery, we should scarcely dare to prescribe an article of the *materia medica*, or venture to employ a single instrument, of the very many we now consider essential, to the exercise of this branch of medical science. Yet who would willingly give up, in the practice of medicine, opium, camphor, mercury, bark, and a hundred other articles, because quacks, and ill-instructed people, have abused them, or even destroyed with them? or who, in the practice of surgery, would throw aside the trephine, the scalpel, the gorget, or the amputating knife, because each, in the hands of the unskilful, may be mischievous?

731. Let those who are to practise midwifery, become well acquainted with the elementary parts of their profession, before they commence it; then gradually proceed to the exercise of the more difficult operations connected with it, and the clamour against the use of forceps will in great measure cease; because, there will necessarily be less reason for complaint. A severe probation awaits an upright, and conscientious man, upon his introduction to the practice of midwifery; for, if he be such, it will be a long time before he will dare to flatter himself, that he can do the best for his patient; and, until he can, he will not be satisfied with himself—but this very distrust would, very probably lead him to a practice, I would earnestly recommend; namely, to cultivate his talents by constant reading, to keep pace with the improvements in his profession, and to seek the aid of those better skilled, or qualified than himself, when difficulty presents itself.

732. Much of the embarrassment, and I may safely add, the risk, in the application of the forceps, might be obviated, if every gentleman, during his medical studies, were to prepare himself by the frequent application of them upon the machine, under all the various conditions the head may offer it-

self within the pelvis—but I am sorry to say, this mode of acquiring knowledge, is not sufficiently appreciated by those, to whom it would be of the most direct, and essential service. There is a tact in every operation, which is indispensable to its well performance, and success; but this can only be acquired, by its frequent repetition—for what should be said of the surgeon, who expected to acquire a knowledge of the anatomy of the part upon which he was about to operate, by dissecting the living fibre, for the first time in his life? or, who could expect a man to apply the forceps with skill, the first time he attempted it, upon the living machine; and this without a previous exercise of the manner, upon the artificial one? The same observations will apply to turning.

733. But it would be unfair to charge all the mischief which has followed the use of the forceps, to the ignorance of those who employed them; or to the action of the instrument itself—much is justly attributable to the views which many celebrated men have taken of their necessity, and utility; as well as to the rules they have laid down, for their employment. In many instances, the evils which appeared to follow their application really existed before they were employed; and might, I am persuaded, have been certainly prevented, had a timely, and judicious use been made of them.

734. Dr. Denman, more perhaps than any other man, is chargeable with perpetuating errors in the use of the forceps; because, he is considered the highest authority upon the subject. In his attempt at precision, he has created confusion; and, in his desire to generalize, he has so many exceptions, that his Aphorisms are no longer rules. The necessity for using the forceps is taken principally from the time the head has tarried at the lower strait or passage, and the condition of the woman; without the slightest regard to circumstances, which may complicate the labour, or make a departure from the rule necessary to both mother and child. His aversion to instruments made him restrict their powers to such narrow limits, as to render them scarcely subservient to the art; and he reduced the cases proper for their application to so few, and so pecu-

liar, that they are scarcely to be met with, that they may be employed.

735. Thus we find that Dr. Denman's fourth Aphorism declares that "the intention in the use of the forceps is, to preserve the lives of both mother and child;" thus far good; but in the very next sentence he says, "but the necessity of using them must be decided by the circumstances of the mother only;" that is, as I understand it, and as I believe every body else, means, we are not to deliver with a view to save the child, unless something threaten the mother. Is not this sadly and improperly limiting the utility of the forceps? for what security have we, when danger assails the mother, that the child shall not have perished before we are, agreeably to Dr. D., justified in delivering it? Let us again suppose that the body of the child is delivered, and that the head cannot be made to pass, either from the want of ordinary power on the part of the mother, or from the extraordinary size of the child's head as regards the pelvis; are we to permit the child to perish because there is no "circumstance," that is, as I understand it, no danger, threatening the mother, to authorize immediate delivery by the forceps, though he has just expressly declared their "intention" is to save the lives of both?

736. His fifth Aphorism declares, "it is meant when the forceps are used to supply with them the insufficiency, or the want of pains;" here is a plain and positive direction, one that the common sense of mankind would at once agree to be sound and proper; one that would justify in the absence of sufficient, or efficient pains, the employment of forceps to supply the deficiency of the natural powers; but all this prudent and well-tested direction, is destroyed by the next member of the aphorism; namely, "but so long as the pains continue, we have reason to hope they will produce their effect, and shall be justified in waiting."

737. In the *Lond. Med. & Phys. Jour.* Aug. 1825, p. 157, there is an indirect charge of a misquotation of Dr. D.'s fifth Aphorism, which I take this opportunity to disclaim. I quoted from an American republication of the Aphorisms, and I find I am correct agreeably to that. My observations on these

Aphorisms were made twenty years ago; and if there be a discrepancy in the two texts, it may have arisen from a subsequent change in Dr. D.'s opinion on this subject; since, the reviewer quotes from the sixth edition. The additional sentence, "*without any degree of vigour*," alters the matter little or none, in my opinion—"with any degree of vigour," is extremely indefinite; for *the degree of suffering* may lead to the belief that force is always commensurate with pain; than which, there can be but few greater mistakes; especially, in cases like those under consideration. Had the sentence read, "so long as the natural pains continue with vigour," the meaning would have been clear; and it would have authorized the alternative of the forceps, when this was not the case. As it stands, even in the reviewer's quotation, I am persuaded, every inexperienced practitioner would feel himself justified in waiting too long.

738. I must still insist, that if this Aphorism has any meaning collectively, it forbids the use of the forceps so long as there are any pains, however feeble, transitory, and insufficient they may be for the end proposed—the value of pains must be estimated by their power upon the body to be moved, and not by the suffering the woman herself may endure. But let it be recollected, that, beside the risk the child runs by long delay in the passage, the soft parts of the mother are suffering from the long pressure of the child's head; subjecting them to contusion, inflammation, sloughing, &c. and this to comply with a prejudice against the proper employment of the forceps.

739. Dr. Davis relates a case completely illustrative of the point I have attempted to enforce; namely, that the soft parts of the mother may, by the long delay of the child's head in the passage, suffer extensive, and irremediable mischief. In the case alluded to, the patient was eighteen hours in labour; and "during no stage of this labour, could it be truly asserted, that there was not some progress made." The child "effected its transit through the pelvis, certainly in the midst of such a tempest of struggles, as I think I have never witnessed upon any other occasion."

740. "The patient died on the tenth day after her delivery."

“On inspecting the body after death,” “the cause of it was discovered to have been a large abscess, which seemed to have implicated all the structures at the superior part of the cavity, and towards the left side of the pelvis, and of which the left ovarium, probably dangerously contused during labour, had all the appearance of being the nucleus.” (*Elem. Oper. Mid.* p. 149.)

741. I may also add, that the head of the child also suffers very severely from a long-continued pressure upon it; producing extensive extravasations under the scalp, as well as sometimes abscess of this part, as is related to have happened to a child that was delivered at the Royal Maternity Charity, after an unusually tedious and painful labour. Baudelocque gives an instance of the scalp sloughing, &c. Vol. III. p. 161.

742. In a word, experience completely proves, that much risk, both to mother and child, is constantly incurred, by the head remaining to press too long upon the lining of the pelvis. Dr. Davis mentions a case (p. 156.) where, after a labour of this kind, “the parietes of the vagina” were much swelled, and required blood-letting and leeching to subdue it.

743. It is merely intended, by what is just said, to justify the assertions I have made against Dr. Denman’s reluctance to employ the forceps, and not a critique upon his Aphorisms—I have offered this elsewhere. See “*Essays on various Subjects connected with Midwifery.*”

744. Dr. Osborn* carries this reluctance still farther; to a degree indeed I think reprehensible, as it seems to militate against the interests of society at large, and of the sex in particular—but he has not done equal mischief with Dr. Denman; because, his authority was not equal. He requires, before the forceps are applied, “the powers of life to be exhausted; all capacity for farther exertion to be at an end; and that the mind be as much depressed as the body; and would at length both sink together under the influence of such continued but un-availing struggles, unless rescued from it by means of art.”

745. I would ask, with what prospect of success would art interfere under such a complication of evils? the woman might be delivered, but what would be her after condition, or that of

* *Essays*, p. 45.

the child?—the one would be subjected to all the evils which a too long delay of delivery would produce, if not death; and the other, to almost inevitable destruction: a court of justice should hold such conduct criminal; for it would merit a severe punishment.

746. Besides, the objections against the forceps are founded upon an erroneous estimate of their tendency—that they have been misused I admit; and so has almost every thing else; but that they have been productive of more good than evil, I am every way persuaded. As regards the child, there can be no hesitation; and as they may have affected the mother, I am certain they have been highly beneficial. It is entirely within my recollection, when cases similar to those, now treated by the forceps, were relieved by the crotchet—the child a certain victim, and the mother a probable one.*

747. However strongly I may be impressed with the utility of the forceps, I should not feel myself warranted to use them as often as they appear to be used in Great Britain, and on the continent of Europe. The frequency with which they have been employed, in some instances is really alarming; and

* In the year 1794, I was sent for by a midwife, to a woman who had been six-and-thirty hours in severe labour with her first child; and she nearly forty years of age. Upon examination, the posterior fontanelle was found at the left foramen ovale; the pains had been violent and frequent, but were now feeble and transitory, making no impression upon the child. I introduced the catheter, and discharged a large quantity of water; then applied the forceps, and soon delivered the child. So soon as it was born, it began to cry; and when liberated from the placenta, I handed it to the midwife, who received it with averted face, and streaming eyes. I inquired of her what had so affected her; she answered by pointing to the child, and saying, “who with any feeling could help it? a poor child to be alive with its head open!” As I did not understand her, I desired she would explain herself; this she did, by saying, “she would not have cared so much, had it been killed outright; but to be wounded and live, was truly shocking!” I still insisted upon farther explanation, as I yet did not understand her, and at the same time uncovering the child, asked if she supposed it was hurt, and if she did she was much mistaken. She now examined the child; and to her utter astonishment, found it without blemish. She then told me, she would have sent for me long before, but for the horror she had of having the child’s head opened; which she assured me, had been the uniform practice upon such occasions, whenever she had sent for a physician. The influence of this case upon many of the midwives of this city, procured me many opportunities of applying the forceps.

I had like to have said, must have been often unnecessary.* In my own proper practice, I am persuaded I have not employed them oftener than once in three hundred and fifty cases; though I have been under the necessity of using them very frequently in the practice of others.

748. I must not, however, be understood as reflecting upon any individual, by the last remark—my meaning will be properly understood, when I state, that some years ago, the practice of midwifery was very much in the hands of females. These females were not competent to the use of instruments; consequently, when they were necessary, others had to perform this duty for them: it fell to my lot to do much of this business. By this means, I have seen very many forcep cases; but the greater part of these did not belong to me, as original cases.

749. But let me ask, what is to be feared from a proper application of the forceps? is their mode of action, when well directed, such as to do injury to either mother or child? cer-

* The following statements upon the subject in question, I extract from Dr. Davis's "Elements of Operative Midwifery."

"It has been stated by Prof. Böer, (see *Medicina Obstetrica*, p. 443.) that the forceps have been used in the practice of an individual, or of individuals, whom, however, he has not chosen to name, in *nearly* one case out of every three labours. Prof. Hagen, of Berlin, delivered 39 women out of 350, or 1 in 9, with forceps. Prof. Nägele, of Heidelberg, reports, that in the practice of the lying-in institution of that city, for the years 1817 and 1818, he used the forceps once in 53 cases. Mr. Burns gives the proportions of Prof. Nägele, as "very much corresponding with those of his own list." In a statement of presentations at Le Maison d'Accouchemens, between December 1799, and May 1809, furnished by the late M. Baudelocque, we have the proportion of forcep to the whole number of labours, as 1 in 353. Madame Boivin, once in 212. Madame Lachafulle, 1 in 166. At the Obstetric School of Gottingen, 1 to between 18 and 19. At the University of Stockholm, 1 in every 100. Dr. Luders, 1 in 109. M. Lobstein, 20 times in 712 cases. Prof. Böer, of Vienna, once in 238 labours. In Dr. Clarke's Abstract of the Dublin Lying-in Hospital registry, it is stated, that the forceps were used 14 times in 10,387 cases."

Dr. Davis considers the proportion of 1 in 53, which is approved by Prof. Burns, at least 400 per cent. too great; and is of opinion, that the forceps are not required more than once in 300, or at most, 250 cases.

From the above statements, it evidently appears, that the forceps, in the hands of some practitioners, have been most wantonly used; and in those of some others, as improperly withheld.

tainly not—then there is nothing to be apprehended from their structure, application, and mode of action, since necessarily, they neither cut nor contuse, mother nor child; neither do they create unnecessary pain, nor inordinately augment that which may be present; but are truly calculated, in the language of Dr. Denman, to supply the insufficiency, or want of labour pains; if this be so, and it is so admitted by Dr. D. himself, should they be condemned, because they may, like every sub-lunary good, be abused?

750. Let me then endeavour to strengthen my case, by considering, 1st. their structure; 2d. their application; and, 3d. their mode of action. Their structure is such as to offer the greatest possible security to the child—the breadth of their clams is so great,* as to prevent any partial or injurious pressure; and the excavated diameter between the blades, even when the handles are pressed pretty closely, will permit the transversal diameter of the head of a child of ordinary size to lie between them, without any, or with very little inconvenience; the length and strength of their handles are such, as to permit compression wherever that compression may be necessary.

751. The proper application of the forceps consists in their complete adaptation to the sides of the head of the child, or as nearly as may be over its ears—when fixed upon any other part of the head, it is but an exception. When placed as just suggested, the head is embraced in the direction of its oblique diameter; (58) the small diameter presents itself between the blades of the instrument. The advantages of this position of the forceps, are: 1st. That the head is seized in its smallest diameter; and this diameter is so little increased by the thickness of the instrument, as to offer no additional difficulty to the delivery. 2d. When the head requires to be compressed, that compression will be in the direction of the short diameter of the head, and will oblige the vertex to extend itself (however

* Dr. Davis thinks the breadth of the blades of the French forceps, is too narrow, and proposes those of much greater breadth. I have never found any inconvenience in the use of these instruments, which was exclusively chargeable to this circumstance. (Elem. Oper. Mid.)

little) in the direction of the oblique diameter ; as its construction gives a tendency to that direction.

752. The proper application of the forceps farther consists, in such a direction of its blades, as will permit their concave edges to come under the arch of the pubes, at the last period of labour—this rule is never to be violated. They must be placed exactly parallel, upon the sides of the head, that they may lock ; and it is ascertained that they are well placed, by their locking without the necessity of force being employed for this purpose. Should they not lock spontaneously, if we may use the expression, force must not be used to make them—for if force be employed for this purpose, it must necessarily be at the expense of the bones of the head, and, perhaps, the destruction of the child. If the handles do not readily join upon the introduction of the second blade, we may be certain one of them has a wrong direction ; it must be ascertained which, and, by a judicious management of the one in fault, make it join, without force, its fellow.

753. When the handles join kindly, we may be certain the blades are properly applied ; and one of the greatest difficulties of the forceps is overcome. The degree of compression to be applied must be determined by the size of the child's head ; its suppleness ; and the capacity of the pelvis—the less compression the head requires, the easier, and the more successful will be the operation.

754. The forceps have two modes of action : *a.* That of compression, in the first instance ; *b.* and that of traction and compression, in the second.

a. Of Compression.

755. I have already stated, that when the forceps are well applied, they traverse the head in the direction of its oblique diameter, or nearly so ; and that the compression which it may suffer, is in the direction of its small diameter ; now, as we cannot determine *à priori*, the size of the head ; the firmness of its bones ; nor the resistance it will meet with in its passage, we cannot possibly calculate the force that will be necessary to reduce the head sufficiently, to permit it to pass through the

pelvis. I can, therefore, only say, the less force it is necessary to exert, the less the head will suffer; and consequently, so far as this operation is directly concerned, the greater the chance will be of preserving the life of the child—and also, that the converse of this is equally true. An inattention to this latter fact, or a want of knowledge of it, has given rise to many of the objections which are urged against the forceps—for it has occasioned their application upon any portions of the head; and the handles forced to lock, at the expense of the fracture of the skull;* it has occasioned them to be employed, where there was so much disparity between the diameters of the head of the child and the pelvis, that it could only be delivered, after the forceps had nearly broken down its texture; need I say, what mischief would follow such displays of ignorance? the child dies by a species of murder; and the mother, especially, in the latter instance, is subjected to inflammation, gangrene, sloughing, or even death.

756. It has been imagined, from the elongation which the head sometimes permits in long protracted labours, that it would bear with impunity any compressing force, which might be applied; but this is an error; and an error of great magnitude; for by acting upon it, the benefits of the forceps have not only been undervalued, but really called in question. I must then, to prevent the perpetuation of this error, as far as may be in my power, declare, that the head will bear with safety but a moderate diminution of its bulk, by the compressing

* I was once called upon to determine whether any thing could be done for a newly-born child, which had been most unskilfully delivered by the forceps—The frontal bone was severely indented by the edge of the forceps; and one eye entirely destroyed, by the extremity of the blade having been fixed upon it: yet was it born alive. The case of course was a hopeless one; and the child fortunately died, in a few hours after its birth. And I was once shown a blade of the forceps, which had been severely bent, by an endeavour to make it lock. In this case, the forceps were exhibited in triumph, and as a proof of the great difficulty the operator had to encounter, in effecting the delivery; and as additional evidence of this, he declared, that no strength was sufficient to deliver the head, as both his (and he was a powerful man) and that of an equally ignorant practitioner, were unavailingly exerted, alternately and collectively—he at last delivered with the crotchet, after having experienced very great difficulty in withdrawing the bent blade of the forceps.

force of the forceps; and oftentimes, much less than is sometimes observed to take place, when the child has been delivered solely by the exertion of the natural powers: the reason of this is obvious; we cannot, by any contrivance of art, imitate this gradual (though not always safe) modification of the head; consequently, when it becomes reduced by a suddenly applied force, like that exerted by the forceps, it must be at the risk of much injury, or it may be even fatal to the child.*

757. This fact, limits the powers of the forceps, more than is commonly supposed, even by those who employ them with the laudable hope of saving the lives of both mother and child; but who frequently experience disappointment, because not aware of it. The forceps, therefore, in the hands of one who considers them as a means by which a difficult labour may be terminated; but who applies them without rule, or without a knowledge of their mode of action, are nearly as fatal as the crotchet itself; because, they are regardless of the degree of compression they impose upon the head, during its extraction.† It would seem, then, from all experience, to follow, that from a pelvis with less than three inches, or even three inches and a half in its small diameter, a child's head, at full time, cannot be made to pass with safety, by means of the forceps, unless there be an unusual degree of suppleness in the bones of the cranium; or the head itself unusually small. If these facts were more generally known, or more constantly kept in view, we should have fewer complaints against the forceps; because, there would be fewer victims to their ill-directed power upon the head of the child, and fewer evils following their application, upon the soft parts of the mother.

* Dr. Davis, however, asks, "Whether in some peculiar circumstances, it might not be found more eligible to apply to the fetal head a certain required amount of compressing force, within a short time, artificially by means of the forceps, than to await the result of a more gradual and protracted application of an ultimately equal degree of force by the natural agents of parturition?" (*Elem. Oper. Mid.* p. 139.)

† I have more than once witnessed the truth advanced here. I have seen the whole length, or nearly the whole length of the frontal bone cut through, by one of the sharp edges of the forceps, by an effort to compress it; and at another, I saw the parietal bone in the same wretched plight, from the same cause.

b. Compression and Traction.

758. We can avoid but in very few cases, in which it is proper to use the forceps, a pretty constant compression, from the moment of their application, until the final delivery of the head. With a view to diminish the permanency of this pressure as much as possible, I am in the habit of not tying the extremities of the handles, as is usually recommended, that I may, after each tractive effort, permit the instruments to expand, as much as the elasticity of the head, and the restricted capacity of the pelvis, will permit. In this, I think there is decidedly an advantage to the child; and there can no possible injury happen from it, to the mother.

d. Mode of Acting after Application.

759. Each effort made to advance the head after the forceps are applied, must be considered as a renewed compression; though the lateral pressure upon it, may be but very little increased; for that the head may advance, the curved extremities of the instruments, must necessarily act at nearly right angles with their sides; consequently, the transverse diameter must be a little increased, or rather less diminished; which, to a certain extent, must increase the difficulty of delivery; or in other words, increase the necessity of a stronger tractive force. This however is in some measure, if not altogether obviated, by making each blade of the forceps act as a lever in conducting the delivery; and this is the usual direction given for their employment, without expressing the reason for it—hence, when the instruments are fixed, we act with much greater effect, by drawing from blade to blade, than if we continued the force in a direct line; for by making the handles describe a portion of a circle, by passing them from right to left, and the reverse, during the traction, we each time (when the head is moveable) make a part of its side sink lower in the pelvis, and advance towards the external opening of the pelvis.

760. The extent of the circular motion which the handles should be made to perform each time, must, at first, and espe-

cially if the head be high in the pelvis, be very small; or we shall be making fulcra of the soft, and bony parts of the mother, at each effort; which must ever be carefully avoided. As the head advances, we may enlarge the space, through which the handles are to move; but it is never to be made so extensive, as to make the instruments press with much force against the bones, forming the arch of the pubes, and the external parts of the mother.

761. The motion just spoken of, is at first horizontal, or very nearly so; but as the head advances, we are obliged to elevate the extremities of the instruments, and this in proportion, as it approaches the vulva, or as it is about to escape the external machinery; so that, at the last moments, the extremities of the handles are laid nearly upon the abdomen of the mother. During the operation, our tractive efforts should coincide with the action of the uterus, whenever that remains; when the uterus has ceased to act, we should permit as much time to elapse between each exertion, as generally takes place between the pains at this period of labour, that we may not exhaust the woman; that we may secure the tonic contraction of the uterus, and that we may not make too sudden, and too long continued compression, on the child's head.

762. It is by no means unusual for the pains to cease after the application of the forceps; and be obliged to perform the delivery without their aid—I am at a loss to account for this; for it is contrary to what might reasonably be expected. When, however, they continue with even moderate force, I have been in the habit of disengaging the instruments, when the head is about to pass through the external parts, that these may be the better supported, and the risk of laceration diminished. Should there be no pain, we are then constrained to continue our efforts, until the head is without.

763. In removing the forceps before the head is delivered, I am aware I am departing from high authority; for Dr. Denman lays it down as a rule, that “in every case in which the forceps have been applied, they are not to be removed before the head is extracted, even though we might have little or no occasion for them.” But notwithstanding this positive in-

junction, I am entirely persuaded, from experience, it is the safer practice, if we regard the integrity of the soft parts of the mother, worth the preserving.

SECT. II.—*Recapitulation.*

764. As I have dwelt upon the use of the forceps longer than I anticipated, I shall sum up in a few words the principal points intended to be insisted on, or illustrated: 1st, that the long French forceps are the preferable, even for the unskilful; 2d, the best position for the woman is that recommended for turning; 3d, the bladder and rectum are to be emptied before the forceps are introduced; the former by the catheter, when the woman cannot command the discharge; and the latter by an injection, if it has not been done spontaneously, a short time before; 4th, the patient and friends are always to be apprized of the necessity and propriety of the operation before it is resorted to; 5th, the vagina, external parts, and the instruments, are to be coated, by fresh hog's lard, or soft pomatum; and the latter warmed; 6th, the forceps are never to be employed before the os uteri, and external parts are relaxed; and the membranes ruptured; 7th, this relaxation to be promoted by the best adapted means; 8th, should the uterus be in a proper condition for the operation, and the membranes at the same time entire, the latter must be ruptured, that the application of the forceps need not be delayed, when the case requires immediate interference; 9th, when the circumstances of the case require the use of these instruments, the application should not be too long delayed, from an imaginary fear, that the woman might suffer from their use, or from an ill-grounded hope that the woman may deliver herself—we should, therefore, not permit her to be exhausted, or the child to perish, because feeble or inefficient pains attend, or because the head of the child has not been six hours in the passage; 10th, the blades of the forceps are always to be applied to the sides of the head—that is, over the ears of the child—when necessity (which is very rare) obliges us to depart from this rule, it is but an exception to the rule; 11th, they must be applied, so that

their upper, or concave edges, will come under the arch of the pubes, at the last period of labour; 12th, should the handles of the instruments not join with ease, we may be certain they are ill applied; the cause of their not locking must be ascertained; and they are never to be joined by force; 13th, the head will not permit with safety, but a moderate approximation of its sides; therefore, when compression is carried beyond this point, the destruction of the child is sure; 14th, with a view to lessen all unnecessary, and too long continued pressure upon the head, the handles of the forceps should not be tied; but after each tractive effort, they must be permitted to expand themselves, by ceasing to press upon them; 15th, each traction should be made from blade to blade; that each may act as a lever upon the head; 16th, the extent of the motion of the handles for this last purpose, must be regulated by the distance the head is from the external parts; for the less the head is advanced, the more circumscribed should be the motion; and the reverse—this motion is at first nearly horizontal;* 17th, the external extremities of the instruments must be raised towards the abdomen of the mother, in proportion as the head advances through the external parts; 18th, should pains continue until the head has nearly passed through the external parts, the forceps may be removed; but if none attend, the delivery must be completed by the forceps.

SECT. III.—*General Observations upon the Forceps.*

765. In delivering by means of the forceps, every attention should be paid to delicacy; and every care should be exerted that the patient be not subjected to unnecessary pain; to fulfil the first, the patient should not be exposed; this cannot be necessary, even for the drawing off of the urine, should that be an essential previous step. The operator must become familiar with the introduction of the instruments without the aid of sight; more especially as this cannot serve *him*, and must, if employed, be highly offensive to the *patient*. He must perform his duty under cover; and the guide for his instrument

* That is, from one thigh of the mother to the other.

must be the hand in which the instrument is not held—this, of course, will sometimes be the right, and at others the left—two or three fingers must be introduced so as to touch the child's head when at the lower strait, and the extremities of them must be insinuated under the edge of the os uteri if that is still down; and upon the plane thus formed by the fingers, the instruments must be conducted; with this precaution he shall give no unnecessary pain; since it will prevent the edge of the uterus from being included between the blade of the forceps, and the head of the child.

766. Should the head of the child have escaped from the os uteri, he must pass the instruments in such manner as shall conduct their extremities under its edges; this is done by keeping the point of the blade pretty firmly against the scalp of the child as it passes into the pelvis—should it, however, meet with any obstruction in its passage, the difficulty must be overcome by address, and not by force—it may be a fold in the scalp, or it may be the ear, against which the point of the instrument is projected; gently depressing the handle of the instrument, or varying its direction a little, will almost always surmount this difficulty.

767. Should much pain be experienced by an attempt to lock the blades when well applied, as regards their position, we may be pretty certain, a portion of the neck of the uterus is included in the grasp of the instruments—we must inquire in which side of the pelvis the pain is felt, and withdraw the blade from that side, and introduce it anew. Should cramps be induced, we may sometimes relieve them by elevating or depressing the handles of the forceps.

768. The greatest care must be taken before we begin our traction, that no portion of the mother is included in the locking of the blades—this must be done by passing a finger entirely round the place of union. This accident very rarely occurs in the use of the long forceps, unless the head is high in the pelvis—with the short it is frequent, even under the direction of the most careful operator; this forms, in my estimation, a very serious objection to their employment. I was once called to a poor woman, who had a considerable portion of the in-

ternal face of the right labium removed, by having been included in the joint of the short forceps.

769. When the instruments are properly adjusted, we should seize the hooked extremities with the right hand, and make them approach each other in the most gradual manner; and we should make no more compression than is absolutely necessary to secure a certain hold, or to enable the head to pass.* The left hand must be applied over the joint of the instruments, and in a manner that will permit the point of the index finger to touch the head of the child, which will enable him to determine the progress it makes. We commence the traction by the smallest force, and gradually augment it, to the extent we may judge necessary—we should finish the effort by gently diminishing the force, until it comes to a state of rest; taking care however, to maintain the advantage we have gained, by removing the pressure from the handles, and hooking two fingers in their curved extremities; and thus prevent the receding of the head. When we have indulged the uterus in a sufficient interval; or upon the accession of a pain, we are to apply our hands as just directed, and act as before.

770. As the head is about to pass through the external parts, the left hand must forsake the instruments, and apply itself firmly against the now distended perinæum; and if there be sufficient power in the uterus to carry the head through the os externum without farther aid from the forceps, they should be removed, as advised; but if not, they must be suffered to finish the delivery.

771. When the head is without, the same care should be exercised as was recommended in a natural labour; that is, not to hurry the shoulders through the pelvis; that the tonic contraction may certainly follow their expulsion.

772. It is frequently more convenient to stand to perform this operation than to sit; but a chair should be at hand, that

* When the pelvis is deformed, and the relation between it and the head of the child is very strict, we are obliged to depart from this rule, and apply a much stronger compressing force; as the diameter of the head must be a little diminished, that it may pass—in this instance, the handles are to be brought together, and secured by a garter or ribbon.

we may use it after the head is delivered; we should order a sheet sufficiently folded, to be spread over our lap, that we may receive the child upon it, when the body is expelled. The funis must be cut at a proper time; and the rest of the delivery finished, as on ordinary occasions.

CHAPTER XIX.

OF THE SPECIFIC APPLICATION OF THE FORCEPS.

773. GENERALLY speaking, the difficulty of applying these instruments is in proportion to the remoteness of the head from the inferior strait; and the facility of application, as the vertex, or forehead, may be near the arch of the pubes. It would be well, were it always practicable, or subject to choice, that the young practitioner should commence with the most simple cases, and gradually advance to the more difficult positions of the head—but as this is impossible under the circumstances of ordinary practice, he should, while in his power, become in some measure familiar with the application of the forceps, by diligently practising upon the machine—indeed it would be highly advantageous to all who may be about to engage in obstetrical practice, to order a machine, as a proper appendage to their instruments. By the use of this contrivance, he can make himself well acquainted with every important presentation, and at the same time make himself master of their respective mechanisms; he can familiarize himself to the application of instruments, and readily teach himself the routine of turning, &c.

774. I shall lay down the rules for the application of the forceps, in every presentation, as succinctly as the subject will permit; knowing, from long observation, that nothing but a careful experience with the living subject, can ever make a man adroit in their use. I shall therefore commence with the

most simple cases; and gradually advance to the more complicated, and difficult.

775. The various ways which the head of the child may offer to the pelvis, when it may be necessary to terminate the labour by the forceps, are,

776. *a.* 1st. Where the *vertex* answers to the arch of the pubes, and the *forehead* to the sacrum.

777. *b.* 2d. The reverse of this, the *forehead* to the pubes, and *vertex* to the sacrum.

778. *c.* 3d. Where the *vertex* is behind the left foramen ovale, and the *forehead* to the right sacro-iliac symphysis.

779. *d.* 4th. Where the *forehead* is behind the left foramen ovale, and the *vertex* to the right sacro-iliac symphysis.

780. *e.* 5th. Where the *vertex* is behind the right foramen ovale, and the *forehead* to the left sacro-iliac symphysis.

781. *f.* 6th. Where the *forehead* is behind the right foramen ovale, and the *vertex* to the left sacro-iliac symphysis.

782. *g.* 7th. Where the position of the head is directly transversal: 1st, where the *vertex* answers to the left side of the pelvis; and 2d, where it answers to the right.

SECT. I.—*a.* 1st. *Application of the Forceps in the First of these Positions.*

783. The woman about to be delivered with the forceps is constantly supposed to be placed upon her back, and every other circumstance, as already directed.

784. The first position in which we are to apply the forceps, Dr. Denman thinks can very rarely require them—this by no means comports with my experience; for I have very often been under the necessity of using them in this situation of the child's head; for any of the causes which I have considered as complicating the labour, may happen at this period, as well as any other. What is there in this position which shall protect the woman against flooding, convulsions, exhaustion, &c. and render immediate interference unnecessary? I can see nothing; for, though the labour is near its completion, it is not completed; and I am convinced, that in many cases both mo-

ther and child have suffered, from the delay which Dr. Denman's repugnance to the employment of these instruments has created, with the practitioners, who consider him the best authority. Were it necessary, it would be easy to give examples to prove what I have just said. (See 744.)

785. In this case, after duly preparing the forceps as already directed, we take hold of the male branch of the forceps with the left hand, and hold it as we would a pen when writing, while we introduce two or three fingers into the vagina against the child's head, and under the edge of the uterus if practicable; we then hold the handle or blade nearly perpendicular, but inclining to the right side of the mother; then insinuate the extremity of the blade between the labia, and slide it along the fingers intended as a guide, until it reaches four or five inches within the pelvis; gradually depress the handle as it advances, and embraces the head. It rarely happens that any difficulty is experienced in the introduction of this blade; its position, if properly applied, is strictly lateral; its concave edge being under the arch of the pubes, the pivot will have a vertical position, while the handle will be sustained by the edge of the perinæum. The instrument must be retained in its position either by an assistant, or by placing it on the knee, while you prepare for the introduction of the other blade—this must be taken in the right hand, as directed for the other blade; and must, like it, be conducted to its proper situation by two or three fingers of the left hand; when advanced as high as the first blade, the handle must be lowered and inclined towards the left thigh of the mother, until it crosses the first blade, and locks with it—if the instruments are properly applied, this will readily happen—the pivot must then be turned, that the blades may be secure of their position with each other—the handles are then to be seized, and the delivery conducted as already directed.

SECT. II.—*b. 2d. Application in the Second of these Positions.*

786. This position (777) is by no means as favourable for delivery as the first, though not more difficult for the use of the forceps; the presence of the forehead under the pubes, as

I have already stated, always renders it more difficult for the woman to deliver herself; and sometimes is of itself a sufficient reason for the use of the forceps. The application of the forceps, is, however, precisely the same as in the one just described; we are only to observe, in finishing the labour, to permit the vertex to turn backward, as it is described to do when speaking of its mechanism.

SECT. III.—c. 3d. *Application of the Forceps in the third of these Positions.*

787. The application of the forceps in this situation (778) of the head is more difficult than in the two preceding; owing to the oblique manner in which it offers at the lower strait. It must assume this position before it can offer its vertex to the opening of the pelvis, but it may fail to make this necessary change, and thus render the labour difficult; or the causes which may complicate any labours may operate at the moment the head has arrived at the place designated, and thus render the use of the forceps indispensable.

788. When the forceps are to be used, the male blade must be passed to the left side of the pelvis at about the same distance as before directed; it will almost always pass along easily, after describing a change of position, which carries the handle a little toward the left thigh of the mother, and gives to the pivot an oblique position, instead of the vertical one before spoken of—after the first blade is adjusted, the other must be passed nearly opposite to it, but a little higher, and immediately against the right leg of the pubes, and behind the right foramen ovale; the handle must be made to incline like its fellow to the left thigh; and, if properly conducted, the blades will lock; but in a manner that will enable the pivot to preserve its look towards the left groin of the mother.

789. When the instruments are joined, we are directed by Baudelocque and others, to turn the vertex towards the arch of the pubes; but this is certainly not always necessary; for I have usually found, that this took place spontaneously as I continued the traction. I have no doubts but this is occasion-

ally necessary ;* especially, where the pelvis is a little narrow, or the head large, and when we find, after successive efforts, the head does not follow the proper direction, we may turn the vertex towards the pubes, by gradually bringing the pivot to a vertical position—when this is done, this case is precisely like the first of these positions, and the labour must be finished like it.

790. I have, in several instances of this position, found it easier to introduce the second blade from below, pressing the handle of the first blade, pretty firmly against the perinæum—that is, instead of having the handle high over the abdomen, to place it under the left thigh of the mother, and make the extremity of the blade penetrate from downward, upward ; care must be taken not to place the female blade below the male, in this case.

SECT. IV.—*d. 4th. Application of the Forceps in the fourth of these Positions.*

791. This position (779) unites the difficulty of the oblique situation mentioned just now, with the disadvantage of the forehead under the arch of the pubes ; and, though the application of the forceps is precisely the same as in the last described position, it will nevertheless be a more difficult operation, for the reason just stated. At the last period, when the head is escaping, it must be suffered to turn backward, as in the second position.

SECT. V.—*e. 5th. Application of the Forceps in the fifth of these Position.*

792. This position (780) is of more difficult management than any of those I have yet described, owing to the necessity of placing the male branch above, and obliging the female

* Baudelocque tells us, that he has occasionally failed to establish the vertex under the arch of the pubes ; and, in these cases, the head has passed through the inferior strait and external parts in a diagonal direction. I have witnessed this direction of the head in a number of instances, where the forceps were not employed ; but it has only occurred to me once, when employing these instruments—when this happens, it is generally owing to the sacrum being too straight.

branch to be placed below—but these difficulties may be surmounted by gentleness and perseverance, and by a just knowledge of the position of the head.

793. The male branch of the forceps must be conducted by the left hand behind the left foramen ovale; this must be done by passing the extremity of the blade upon two or three fingers immediately under the left leg of the pubes; the handle of course must be depressed in proportion to the advancement of the blade, and made to incline towards the right thigh of the mother; and, when correctly adjusted, the pivot will take an oblique position, and look towards the right groin of the woman. The female blade must be introduced on the inferior part of the right side of the pelvis, and adjusted so as to correspond with the first introduced blade—the handles must then be locked, and seized by the left hand at the extremities of the blades; while the right, will take hold over the pivot; a finger to be placed against the head of the child, as before directed.

794. It is not generally necessary to turn the vertex towards the pubes in this case, any more than when it was on the opposite side of the pelvis; this will take place as in the former case, by observing the proper direction, for the tractive forces.

SECT. VI.—*f. 6th. Application of the Forceps in the sixth of these Positions.*

795. The relations of the head and pelvis in this case, (781) as regards diameters, are precisely the same as the one just described; and the forceps must be applied in the same manner. The same precaution must be taken at the final passage of the head through the external parts, to permit it to turn backward.

SECT. VII.—*g. 7th. Application of the Forceps in the seventh of these Positions.*

796. Dr. Denman, in his Aphorisms, seems to acknowledge but one mode of applying the forceps, for the four last positions, and the one now under consideration; (782) and his

directions for all, are applicable only to the last. This position of the head must be rare; at least, I have encountered it but once, and it was relieved by one blade of the forceps acting upon the vertex, so as to aid the efforts of the uterus, (which were very strong,) in bringing it towards the symphysis pubis.

797. When the forceps are resolved on, and the vertex of the child is to the left side of the pelvis, the female branch of the forceps must be placed behind the symphysis pubis, and the male blade before the sacrum. The handles of the instruments should be made to incline towards the left side of the mother, that the vertex may descend rather more than the forehead. When the vertex is on the opposite side, the male branch must be inserted behind the pubes, and the female branch before the sacrum; the handles, in this case, must be inclined to the right thigh of the mother, for the reason just stated.

CHAPTER XX.

GENERAL REMARKS ON THE USE OF THE FORCEPS, WHEN THE HEAD IS ABOVE THE SUPERIOR STRAIT.

798. SMELLIE appears to be the first who had either sufficient skill, or hardihood, to apply the forceps while the head was free above the superior strait; and since his time, he has had but few followers.* This however has not arisen so much from the contemplation of its dangers, as the consciousness of its difficulties. To employ the forceps with success under such

* Dr. Davis (Elem. Oper. Med.) appears to have used the forceps, when the head was above the superior strait; and recommends it with every apparent confidence, in several cases where immediate delivery may be necessary. This however neither diminishes the difficulty, nor danger of these instruments, when awkwardly used. In his hands, the forceps may relieve the head from any situation in which it may be placed; but it must be recollected, that few can boast of his experience, or adroitness.

circumstances, it is necessary that the operator should be aware of all he might have to encounter, as well as to be well skilled in their application, in the situations we have just been considering; therefore it cannot be recommended as a resource to inexperienced practitioners.

799. Baudelocque's observations upon this subject are so just and so important, that I must recommend them to the serious consideration of every gentleman who may intend to pursue the practice of midwifery. Fortunately, the necessity for operating with the forceps, while the head is in this situation, seldom occurs; especially, in this country, where the only apology for their use, namely, a narrow pelvis, is of but very rare occurrence. I have been obliged to use them but three times, in this situation of the head, in five-and-thirty years—my experience, of course, in this necessity, is very limited. On this account especially, I refer to the high authority just mentioned, and forbear to give directions for their use. I believe, that the frequent mention of difficult, dangerous, and rare operations, leads oftentimes to the unnecessary performance of them; not always so much from the necessity of the case, as the eclat which attends them, however unsuccessful. In surgery, I have known it more than once to have been the case; and once certainly, in midwifery.

800. When a necessity arises to deliver, while the head is thus situated, it is much better to have recourse to the doubtful, but safer alternative, turning—for it will rarely happen, that this cannot be performed while the head remains free above the superior strait, even where the pelvis may be a little contracted, with at least as much safety to the child, and certainly more to the mother.* I should therefore earnestly re-

* Dr. Davis proposes to deliver from the superior strait, under circumstances not recognised by any other practitioner. He observes, "In profuse uterine hæmorrhage, for instance, the orifice of the uterus being supposed to be amply dilated, but the head of the child still at the brim of the pelvis, this method of treatment might sometimes very well deserve consideration, in comparison with delivery by turning." (*Elem. Oper. Mid.* p. 233.)

I have already noticed this opinion of Dr. Davis, elicited by other considerations of his subject, at par. 631. I there suggested, and now repeat, that the use of the forceps, under such circumstances, must be uncertain, if not dangerous;

commend to every unskilled practitioner, not to attempt this difficult, nay, in such hands, dangerous operation. Even Smellie* himself, the original projector of the use of the forceps at the superior strait, deprecates their employment at this part of the pelvis; he says, "a long pair of forceps may take such firm hold, that, with great force, and the strong purchase, the head may be delivered, (from the superior strait,) but such violence is commonly fatal to the woman, by causing such an inflammation, and perhaps laceration of the parts, as is attended with mortification. In order," continues he, "to disable young practitioners from running such risks, and to free myself from the temptation of using too great force, I have always used and recommended the forceps so short in the handles, that they cannot be used with such violence as will endanger the woman's life." From this it would appear, that even in the hands of one of the most expert accoucheurs that ever lived, there was much danger attending delivery by the forceps, while the head remained at the superior strait.

CHAPTER XXI.

OF THE LOCKED OR IMPACTED HEAD.

801. WHEN the head has advanced some distance into the pelvis, and cannot proceed farther, and when it is immovable except upward in the pelvic cavity, it is then said to be locked or impacted. Baudelocque's account of this situation of the head, is by far the most lucid I have met with; he most successfully combats the opinions of both Levret and Ræderer upon the mechanism of this arrest of the head, and completely establishes his own doctrines upon this point. I have so rare-

and I must again declare, I think turning to be the proper operation, if necessary to have recourse to any.

* Treatise, Vol. I. p. 221.

ly met with this situation of the head, that I feel almost altogether indebted to him for what I know upon the subject; I shall therefore adopt his account of this embarrassing case.

802. He admits but one general species of locking; and that is, where the head is fixed by two points of its surface diametrically opposite each other; this species he divides into two varieties; 1st, where the head is jammed with its greatest length between the pubes and sacrum; and 2d, where its thickness cannot pass, owing to a narrowness of the pelvis; in the first case, it is the forehead and occiput which are in contact with the inner edge of the pelvis; and in the second, it is the parietal protuberances—this latter is the most rare.

803. Whenever the head becomes locked, it acquires the form of a wedge; or as Lamotte finely illustrates it, by comparing it to the key stone of an arch.

SECT. I.—*Of the Causes, Signs, and Accidents of the Locked Head.*

804. Several causes must concur to produce the locked head; 1st, the long continued, and vehement action of the uterus, and the auxiliary powers of labour—therefore, this fixedness of the head never need be feared in a delicate woman, agreeably to Baudelocque; 2d, a disproportion between the pelvis and the head; this disproportion may depend upon the mal-situation of the head; upon its great size and solidity; or upon the deformity of the pelvis.

805. The immobility of the head is the pathognomonic sign of its being locked; but after it has become fixed, other symptoms arise, which, if they do not characterize this situation, are sure to accompany it—such as a swelling of the hairy scalp of the child; a thickening of the os uteri; an intumescence of the vagina, and external parts. These symptoms do not always declare a locked head, but a locked head is never without them. When the pelvis is so small that the head cannot engage in it, these symptoms take place, agreeably to Lamotte and Ræderer; and sometimes are mistaken for signs of a locked head.

806. A locked head is always serious to mother and child;

the mother it exposes to inflammation, sloughing, or gangrene ; and the child to almost certain death.

807. The whole of the soft parts of the mother become seriously injured, by the long-continued and violent pressure which the child's head exerts upon them ; the vagina, rectum, and urethra, sometimes receive irreparable injury. The bladder also suffers from the accumulation of the urine, nor can it be relieved by the catheter, as the canal of the urethra is entirely obliterated.

SECT. II.—*Indications in the Locked head.*

808. The principal indication in the locked head, is the delivery of the child. This is to be effected by the forceps, in preference to any other means, so long as the child is living ; if its death be certain, the crotchet undoubtedly merits the preference. If we consult the older writers upon this subject, we shall find they all had recourse to the crotchet upon such occasions ; and I am sorry to add, that but too many living authors, as well as practitioners, are too fond of following their example. For, though the forceps do not always insure safety to the child, they give it at least the best possible chance ; they should, therefore, ever be preferred. In this country, this terrible case is comparatively rare ; this is owing principally to the healthy construction of the pelves of our females. When it takes place, it almost always arises from the bad positions of the head ; and these positions must be either the third or sixth—now, these, as has already been observed, are of rare occurrence.

809. I especially recommend the reader to consult Baudelocque's very useful chapter upon this subject ; he will find much excellent practical matter, besides the histories of several very interesting cases, which are of much importance, particularly to the professed accoucheur,

810. The locked head is sometimes confounded with a head merely arrested in its progress ; this stoppage may arise from, 1st. Whenever the head maintains its diagonal or transverse position, at the lower strait ; 2d. When the chin departs from

the breast too early in the labour ; 3d. When the lower strait is less than the ordinary size ; 4th. When the external and internal parts make much resistance.

811. For the removal of the first cause, we must bring the vertex towards the arch of the pubes ; by one blade of the forceps, or by a lever ; this is not very difficult to perform ; I have constantly succeeded, by applying the extremity of the instrument upon the vertex, by passing it at the bottom and side of the pelvis, until it has passed under the head ; we then raise the edge of the blade, and insinuate it between the side of the pelvis and the vertex ; then, if the handle be pressed against the perinæum, its curve will be placed upon, or near the posterior fontanelle. When thus fixed, we must draw the instrument downward and forward during a pain, until we can move the vertex to its proper situation. When the head is thus changed, we may withdraw the vectis, and commit the rest to nature.

812. The mode of treating the second case has already been explained, (672, &c.) when speaking on this perverse situation of the head. When the arrest is owing to the smallness of the lower strait, as in the third (810,) the head must be extracted by the forceps, unless the defect be excessive ; and if excessive, and the child dead, the crotchet must be used ; but if living, Baudelocque proposes the Cæsarean operation. If the external and internal parts, as in the fourth case (810,) offer the resistance, blood-letting will be the remedy.

SECT. III.—*Method of Using the Forceps in the Locked head.*

813. When the head is locked by its greatest diameter becoming wedged in the small diameter of the superior strait, it is either by the vertex or the forehead being towards the pubes. In using the forceps for either of these situations, we must conduct them so as they shall apply themselves over the ears of the child, or to the sides of the head. They must be so applied, that the concave edges must be towards the part which will eventually come under the arch of the pubes. When the head is embraced, we must endeavour to raise it up by a compound motion of the forceps ; that is, by carrying the handles gently

from side to side of the pelvis, and at the same time pushing the instruments upwards, so as to raise it from its bed. When this is done, the vertex or forehead must be turned towards the left side of the pelvis, if practicable; and, when there, the motion we have already described must be given to the handles of the instruments, until either the vertex or forehead, as the case may be, is brought under the arch of the pubes. Baudelocque directs the head to be turned as it is brought along, but I do not think this necessary; for when the head arrives at the inclined plane, formed by the sacro-ischiatic ligaments, it will turn towards the opening of the pelvis spontaneously. It must be recollected, in order that the instruments shall be carried to such a height in the pelvis, the handles must be kept well pressed against the perinæum.

814. When the head is locked by the small diameter becoming jammed in the small diameter of the superior strait, the vertex must answer to either the right or the left side of the pelvis, and the concave part of the instruments must look towards it; consequently there will be a choice of blade to be first introduced—if the vertex be to the left side, the male blade must be first, and the reverse. The head must be raised from out of the superior strait by the hand, and then the instruments must be directed over the sides of the head, and the traction must be in conformity with the axis of the upper strait; and this direction is given by pressing the handles against the perinæum.

CHAPTER XXII.

OF THE USE OF THE FORCEPS IN FACE PRESENTATIONS.

815. IN considering face presentations, I was inclined to restrict their number to two, instead of the four described by Baudelocque—if I should not be correct in this reduction, I

am at least sure, that the first and second of my arrangement, are by far the most frequent, and can safely say, I have never met with the third and fourth, though recognised by Smellie and Baudelocque. Indeed the presentation of the face in any position is of very rare occurrence; I find I have met with it but seven times in very near nine thousand cases; and, upon consulting the table furnished by "l'Hospice de la Maternité de Paris." I find, that of 12,751 women delivered in that institution, there were but 40 face presentations; and of that 40, but one of the first presentation of Baudelocque, and not one of the second; whereas of the third, there were 22, and 17 of the fourth; or 22 of my first presentation, and 17 of my second. This is strong confirmation of the infrequency of the first and second positions, of Baudelocque.

816. When a labour in which the face presents becomes complicated by any of the before enumerated causes; or is rendered impracticable from mere position, without the application of adventitious aid; and that aid, consisting of the proper application of the hand, prove insufficient for its accomplishment, we must resort to instrumental delivery—this will comprehend, the use of the vectis, the application of the forceps, or the employment of the crotchet.

817. Of the mode of using the vectis I have already spoken;* the forceps I consider of doubtful efficacy, not so much from the difficulty of application, as their mode of action in these particular cases; though, it would seem, Smellie had succeed-

* Baudelocque's method of using the lever in this case, (System, Vol. III. par. 1836) appears to me to be defective, as I have already stated. I have, in a few instances, used it as described before, with the most decided advantage—but how far it may be successful as a general practice, I have yet to learn; for I again declare, my experience in face cases is very limited; but it appears to me to be more consonant with the principle to be acted upon in such cases; which is, to reduce the vertex, and elevate the chin. But agreeably to him, we must act forcibly upon the vertex, that it may "be sufficiently brought down;" but we cannot bring the vertex down alone by his plan, as the face will descend with it by obeying the same impulse which moved the vertex. Now, this disadvantage is avoided by the plan I propose; namely, after fixing the vectis properly upon the occiput, we apply no more force to it than is sufficient to prevent it from rising in the pelvis, at the time we are acting on the face, by applying two fingers immediately at the extremity of the nose, and upon the upper jaw.

ed with them. I would, however, wish to be understood, in speaking of the use of these instruments, that I confine my observations entirely to the two first presentations of the present arrangement,* or where the head is situated transversely in the pelvis. In such situations of the face, we are told, "that we must use the forceps," by both Smellie, and Baudelocque; the latter declaring, that "when we cannot rectify the relation of the face to the pelvis by the plan already advised, or without great danger to the mother, because the head is strongly wedged, and the uterus contracted and closed upon the child,"—"we must use the forceps to bring the head along in the attitude we find it in," because fewer inconveniences result from it to mother and child than from any other method.

818. Should the forceps be determined on, we must apply them over the ears; that is, one blade behind the pubes, and the other before the sacrum; they must be so applied that the concave edges must look towards the hind head, which must be brought under the arch of the pubes, and not the chin, as directed by Smellie.

819. Should all the reasons exist for using the forceps, and their application not prove successful, I feel that this is one of the very few cases, where the application of the crotchet is justifiable, for the preservation of the mother, however repugnant I may be to its use, or however revolting its consequences.

820. Having considered all the most frequent and better known presentations of the head, with the various modes of conducting them when nature is sufficient to their accomplishment; the mode of operating by the hand alone when she is of herself incompetent to this end; and the use of instruments when it becomes essential to employ them; I shall not consume the reader's time or patience by describing a variety of other presentations of this part as laid down by authors; first, because I have never seen them; and, second, because I believe if they really exist, they must all, or with few exceptions, be

* The third and fourth are so rare, or rather their possibility so doubtful, that I do not think it worth while to notice them farther than I have already done—those desirous of seeing all that can be said upon these positions, are referred to Smellie, and Baudelocque.

treated by turning, as I shall direct for many other rare and perverse positions which the child's body *may* assume at the orifice of the uterus.

821. Nor shall I spend time in describing the form of the vectis, or its mode of application; because the one would be totally unnecessary without the other; and I decline the latter, because, I am not in the habit of using this instrument, except in rectifying bad positions of the head; and then, I have always found one of the blades of the forceps sufficient. I consider the vectis inferior to the forceps, in power, safety, and convenience: and I am truly glad to perceive the change which has taken place in the public mind, since the accurate and elaborate analysis of its merits, by the judicious Baudelocque.

822. I am pleased to find a change in Mr. Burns'* opinion upon the subject of the vectis; he says that "a young practitioner shall be less apt to injure his patient, and less likely to be foiled, with the forceps than the vectis;" and particularly gratified that Dr. James, in a note to this paragraph, expresses the same belief. The latter gentleman's opinion, upon this and every other point connected with our subject, is highly valuable; especially, in this country, where the opportunities to test the respective merits of these instruments, can fall to the lot of no one who is not extensively, and for a long period, engaged in obstetrics; for the facility of labours among our females, owing to the almost entire exemption from rickets, and other causes which render this process one of much more difficulty in Europe, gives comparatively few opportunities to decide upon their respective claims.

823. I have for many years felt the superiority of the forceps over the vectis; but was reluctant publicly to express it, from an apprehension that I might have mistaken my own maladroitness in using the latter, for an imperfection in the instrument itself; but, strengthened by the opinion of Dr. James, I have no longer any hesitation upon this subject.

* Principles, James's ed. 1823, Vol. I. p. 447.

CHAPTER XXIII.

PRESENTATIONS OF THE BREECH.

824. THE presentation next in frequency is that of the breech, though not so arranged by Baudelocque; but as before stated, I think it a good rule, to treat of labours in the order of their frequency. The breech may with great propriety be considered as a variety of natural labour; since, the woman most frequently is able to relieve herself, though the process may be longer, and more painful, than when the vertex presents, in one of its best manners. And were I to institute a comparison between the two, I should say it is not ordinarily more painful than the fourth, or fifth vertex presentation. I think also, that this presentation is more favourable for the child, than either the feet or knees; especially, in first labours; though the operation, generally speaking, is slower, and perhaps more fatiguing to the mother.

825. The great risk, in all the labours, whether natural or artificial, in which the child first offers the feet, is the delay in the delivery of the head, and the compression of the umbilical cord. Now, the latter very frequently depends upon the former; and the former upon the bad position of the head, as regards the pelvis; or from the rigidity of the external parts. This being the case, it is evident, that the risk of the delay of the head at the inferior strait, in consequence of the want of dilatation of the external parts, must be less in presentations of the breech, than of the feet and knees; because, its bulk is nearly equal to that of the head; and will by its passage through those parts so effectually dilate them, as very much to diminish the risk of such delay. On this account, I think breech labours, *cæteris paribus*, safer to the child than those of the feet or knees, though they are not generally so considered.*

* Baudelocque† says, that “delivery may be generally performed as naturally when the child presents the breech, as when it offers the feet or knees: only

† System, Vol. I. par. 766.

826. The presence of the breech at the orifice of the uterus, cannot be very well ascertained, or distinguished, before the membranes are ruptured, and the uterus pretty well dilated. Under proper circumstances it may be known, by its forming a large softish tumour in the pelvis, which wants the characters of the head, only with which it is liable to be confounded; for it has neither the sutures, nor the hardness, of this part; nor the roughness of the hairy scalp.* A deep groove is observed in the centre of this part, which when traced, leads to the detection of the anus, and the parts of generation. A discharge of meconium, after the membranes have given way, tends to corroborate, but does not absolutely confirm, the presence of the breech.

SECT. I.—*Species of Breech Presentations.*

827. There are four principal manners in which the breech may present at the upper part of the pelvis; *a*, the first, is where the lower part of the spine and sacrum offers to the left acetabulum, while its abdomen looks towards the right sacro-iliac symphysis; *b*, 2d, where the back part of the child answers to the right acetabulum, and the belly to the left sacro-iliac junction; *c*, 3d, where the spine and sacrum are behind the symphysis pubis, and the belly toward the projection of the sacrum; *d*, 4th, the reverse of this.

that, *cæteris paribus*, it will be a little longer, and more difficult; because the child does not then form so regular and lengthened a wedge, as when the lower extremities are unfolded." I agree, that it may be "a little longer and more difficult" to the mother; but, for the reasons above stated, I think it safer for the child.

* It must, however, be confessed, that there is sometimes a great deal of difficulty in deciding, whether the presentation be the head or the breech—the former, when very much swoln by becoming locked, may resemble the breech; and the latter, when very tumid, may have its principal signs so masked, as to render it doubtful whether it be breech or head. Baudelocque† tells of an experienced practitioner, who mistook the breech for a locked head, and delivered it with the forceps. In all cases of ambiguity, I have constantly made it a practice to introduce the hand, to ascertain the nature of the presentation, whenever it became important to decide the point.

† System, Vol. I. par. 1251.

SECT. II.—*a. Mechanism of the First Presentation of the Breech.*

828. In this presentation the oblique situation of the breech at the upper strait, is soon changed by the contractions of the uterus, into one almost strictly transversal; so that the spine will at one time be found behind the symphysis pubis; but soon after, the left hip or spine of the ilium, will be made to offer itself under the arch of these bones, while the right will be resting upon a part of the sacrum, and the inclined plane formed by the left sacro-ischiatic ligaments. The spine of the child will rest against the left leg of the pubes, and the hip which is under the arch will rise upwards, while the right will turn into the hollow of the sacrum, and travel successively over the point of the coccyx, and the face of the perinæum, to offer itself at the bottom of the vulva, that it may escape through the external parts; which presently it does, with the other portions of the breech, by rising by a slight bend of the spine, toward the mons veneris.

829. When the breech has passed a sufficient distance through the os externum, the legs of the child fall down; and the remaining portion of the body, by the successive contractions of the uterus, will be delivered by passing a little obliquely through the external opening of the pelvis. When the armpits descend to the superior strait, there is a momentary interruption to the farther descent of the body of the child, occasioned by the size of the shoulders, and position of the arms; but from the pliant disposition of these parts, it is but temporary; for they are made to accommodate themselves to the shape of the pelvis, by the repeated contraction of the uterus. The head now offers itself to the upper opening of the pelvis, the occiput is behind the left acetabulum, and the face before the right sacro-iliac junction. The chin will be found descending before the occiput, in consequence of its having been against the breast of the child.

830. As soon as the head clears the superior strait, the forehead inclines towards the hollow of the sacrum, by the same pivot-like motion which it performs to place the vertex under the arch of the pubes, in vertex presentations. The nape of

the neck will now be under the arch of the pubes, while the face will be lying on the face of the perinæum. The chin will first escape from the vulva; the other parts of the face, and anterior part of the head, will successively follow; while the nape of the neck will execute a slight circular motion under the arch of the pubes. The arms are liberated, so soon almost as the shoulders are pushed through the os externum.*

SECT. III.—*b. Mechanism of the Second Presentation of the Breech.*

831. In this presentation, the mechanism is precisely the same as that of the first; on the part of the child we must only substitute the right hip, offering at the arch of the pubes, for the left, as in the first presentation; and, at the last period of the labour, the vertex or occiput will be placed at the right side of the pelvis instead of the left. On the part of the pelvis, it is the right acetabulum, behind which the breech offers, &c.

SECT. IV.—*c. Mechanism of the Third Presentation of the Breech.*

832. In this presentation, the breech engages in the superior strait, with its greatest width parallel to its large or transverse diameter—the spine passes immediately behind the symphysis pubis; and it becomes a matter of some uncertainty, which hip will offer under it; but whichever it may be, it passes through a little obliquely, as in the other presentations. Though in this position the face of the child looks directly to the projection of the sacrum, it seldom happens, that the head becomes jammed with its greatest diameter, in the small diameter of the superior strait; it is therefore almost always found to place itself diagonally, and pass down in that direction, as in the two former presentations.

833. When the breech becomes free, the labour proceeds commonly as has been described in the first or second positions, as it may be the left or the right hip which offers to the arch of the pubes.

* It must be borne in mind, that a strictly natural delivery is here described—or in other words, where no adventitious aid is required.

SECT. V.—*d. Mechanism of the Fourth Presentation of the Breech.*

834. The only difference in the mechanism of the third and fourth of these presentations, is, that instead of the face being placed below, as in the third, it is found to be looking up, which creates the only peculiar difficulty in this case. The risk of the head engaging with its greatest length in the smaller diameter of the superior strait, is perhaps greater in this than in the third—but should this take place in either, difficulty might be created. The fourth presentation is decidedly a rare one—I have met with it but once; and upon examining the returns from “l’Hospice de la Maternité,” but one case is recorded in more than 12,000. When it occurs, and we have not lost the opportunity, we should always seek for the feet, and deliver by them.

835. I have already observed, that all the presentations of the breech are attended with slower, and more painful labours; and that the child very frequently suffers. This is especially the case, where the labour has been improperly interfered with, either by rupturing the membranes unseasonably, or under the influence of false principles, seeking the feet, and causing the child to pass rapidly through the external parts, before they are properly relaxed, until the head becomes wedged in the inferior strait. Then, under the direction of the same erroneous views, it is attempted to deliver it quickly, by making force supply the place of address; and the child becomes the victim of this unnecessary, and ill-directed violence.

836. It must constantly be recollected, in all cases in which the head is the last part to be delivered, that when it offers itself to the os externum, it is entirely from under the *direct* control of uterine action; the auxiliary, and voluntary powers alone have an influence upon it, at this period of labour; and though external force may, and almost always does become necessary to terminate the labour, it must always be made to co-operate with these powers, by soliciting the woman to exert them as amply as may be in her power.

CHAPTER XXIV.

CAUSES WHICH MAY RENDER PRESENTATIONS OF THE BREECH PRETERNATURAL.

837. IN a breech presentation, the woman may be assailed by any of the accidents already enumerated, as complicating a natural labour, in which the child presents the head; and like such labours, this also must, when the cause is menacing, be rendered preternatural by the interference of art. Besides the causes just alluded to, there may be others connected with the child itself, which may cause us to aid in the delivery of the woman. But in the absence of any such causes, and especially, in a first labour, the process should be left to the powers of nature alone; or at least, until the breech is delivered.

838. I am aware that many respectable practitioners are in the habit of introducing the hand and bringing down the feet, in all cases of breech presentation; but I am abundantly convinced, that, as a general rule, it saves the mother nothing, and that it is highly injurious to the child. I am of opinion that this practice is very often the result of the classification of labours; these being almost uniformly placed in the preternatural class, it has been too easily supposed that they always required extrinsic aid. May not this be the reason why so many children perish in this presentation? What the general practice in breech presentations may be in Great Britain, I am not prepared to say; but their result is extremely unfavourable; since Dr. Denman says, "I have considered one child in three of those born with these presentations, to be still-born." This proportion by no means coincides with my experience in such cases; the average of living children would be considerably greater, though a number of my cases were second hand, and in which the first stages of labour were often very ill conducted; I, nevertheless, think Portal's proportion rather excessive—he makes but twenty per cent., while Dr. Denman's is thirty-three—in this country, where we but very rarely meet with

a deformity of pelvis; when there is not an excess of size in the breech; and when the earlier stages of labour have not been disturbed, by ill-timed officiousness, or an entire ignorance of the correct rationale of such cases, I am, I think, warranted in saying, that the number of still-born children from breech presentations, might be reduced to very few.

839. But should any one of the accidents which may disturb a labour, assail a woman whose child is presenting the breech, we are justified in giving such assistance as the exigency of the case may demand. The kind of aid we are to give, will depend upon, 1st, *a*, the degree of advancement, or the part of the pelvis at which the breech may be at the time; 2d, *b*, the position of the child; and 3d, *c*, the size of the breech.

a. First Degree of Advancement.

840. An accident threatening or endangering the life of the mother, may, *a*, attack her in the very commencement of labour, and where the child is still at the superior strait; *b*, it may attack, when the breech is pretty low in the pelvis, but still included by the uterus; *c*, it may attack when the breech is at the lower strait, but escaped from the uterus.

841. *a*. This may happen when the uterus is well dilated, or easily dilatable, or when rigid; the membranes may be either entire or just ruptured, or ruptured a long time.

842. Should any circumstance render it necessary to deliver the woman when the labour is but little advanced; the breech at the superior strait, or near it; the uterus dilated or dilatable; the membranes entire, or just ruptured; we must without hesitation introduce the hand and bring down the feet, and finish the delivery as directed, when turning is employed for a vertex presentation. But should the uterus be still shut, or but little opened and rigid, nothing should tempt us to enter the uterus forcibly, with a view to bring down the feet and deliver; especially, if the membranes are entire; as, under such circumstances, there must be a reasonable expectation that the uterus will soon dilate, at least sufficiently to pass the hand without violence. As I have constantly inculcated the impro-

priety of dilating the uterus by force, whenever the labour is complicated by any supervening accident, I must be understood here to make no exception in favour of this presentation; therefore, when the uterus is rigid, and but little opened, we must treat the case by temporising agreeably to the nature of the accident, until either the remedies, or the influence of the accident, or the powers of the uterus itself, shall make such change as will render the attempt at bringing down the feet proper and safe.

b. Second Degree of Advancement.

843. *b.* It may attack when the breech is pretty low in the pelvis, but still included in the uterus; this may happen when the uterus is well dilated or easily dilatable, or when rigid and unyielding; and when the membranes are entire or just ruptured; or when the waters have been drained off a long time, and the uterus is firmly embracing the body of the child.

844. In the first instance, or where the uterus is in a condition to transmit the hand without much force, the membranes entire, or the waters but lately passed off, we should bring down the feet as directed in the former instance, and finish the labour after the same manner. But should the os uteri be rigid, whether the membranes be entire or not, we must not force the mouth of the uterus, with a view to terminate the labour; but, as just suggested, temporise, until the uterus will permit the hand to pass for this purpose, without difficulty; for it will rarely happen, even where the waters have long escaped, that we cannot pass the hand to the margin of the pelvis, and seize the feet, provided the proper hand be employed.

c. Third Degree of Advancement.

845. *c.* It may attack when the breech is at the lower strait, but passed through the mouth of the uterus. This situation necessarily presupposes the dilatation of the uterus, and almost certainly the escape of the waters. In this condition of the breech and uterus, we must not attempt to bring down the feet, unless the breech be very small, or the pelvis very ample, and

the woman without pains, or at least efficient ones: for if they are protrusive, and under the circumstances just mentioned, they will deliver the breech in good time, or in such time as will prevent any serious inconvenience from the delay. But should the breech be large, and occupy the lower strait very strictly, we should not attempt to finish the labour by bringing down the feet. In this case, we must assist the passage of the breech, by acting, 1st, with the fingers; 2d, by the fillet; 3d, by the blunt hook or hooks.

846. When the breech is very low in the pelvis, or so low that we can place a finger into the groin, we may, by the force so applied, aid the descent of the breech; especially, if the uterus by its contractions still powerfully co-operate with our exertions. Whenever attainable, we should prefer that groin which is most posterior to the arch of the pubes, when but one at a time can be operated on. If both groins can be reached, we may insinuate a finger of each hand into them, and have this double power to assist the breech to descend.

847. Should the force, just directed, be too feeble for the purpose; or too fatiguing to the operator, he may substitute the fillet with very great advantage. Baudelocque* makes a disparaging mention of this power; he says, "its application is so difficult, that it is with a sort of repugnance that he reckons it among the resources of the art." That it is sometimes difficult in its application, I readily admit; but it is by no means impracticable, when the breech occupies the lower strait. If the passing of the fillet be attempted when the breech is pretty remote from the os externum, we may certainly be foiled; but this is not a case proper for this instrument; for it can only be used when the point of the finger can command the groin.

848. This fillet should consist of a piece of silk ribband of an inch and a quarter or half wide, and at least two feet and a half long. When doubled, the point of the fore-finger should be placed in the centre of the fold and kept tight upon it, by drawing it sufficiently with the other hand—the parts of the woman and the fillet should both be imbued with lard or sweet oil, and

* System, par. 1267.

the riband then passed into the vagina by the point of the finger, and conducted over the hip, and into the groin towards the parts of generation of the child, as far as the point of the finger can reach; the finger is then to be retracted a little, that it may gather upon its point another fold of the fillet, which it also carries forward as far as it can reach; and this to be repeated for several times, until the folds so multiply in the groin, as to move each other forward, so as to appear at the other extremity of it—when there, it may be drawn down by the fore-finger of the other hand, introduced, after the first is withdrawn from the vagina; or it may be hooked, as proposed by Baudelocque, and as I have myself practised, by a hook, made extemporaneously, of a piece of pretty stiff wire.

849. When the fold of the fillet is seized by the finger and thumb, or hooked by the instrument just mentioned, we are to take hold of one of the outer extremities of it with one hand, while we draw the other end through the groin, by gaining successive portions of it. When the fillet is thus made single in the groin, we take hold of both extremities of the riband, and secure a good hold by passing it several times round some of the fingers. We then co-operate with the pains, if there be any, by pulling in the direction of the axis of the lower strait, until the breech is relieved from the pelvis.

850. But should we not be able to pass the fillet, because the breech is too remote for the finger; or because, the breech is very large and firmly impacted in the pelvis, we must then attempt assistance, by employing the blunt-hook, or hooks. I have found, more than once, the hook at the extremities of the French forceps answer extremely well, as Baudelocque has suggested. But, that they may be employed with advantage, they must stand very nearly at right angles with their stems; for if they are too much depressed, they cannot be introduced into the groins; and for this reason I would advise every gentleman who may adopt these instruments, to attend to this point at the time he is purchasing them.

851. The mode of using the blunt hook, is, by first placing the point of the fore-finger upon the groove which leads to the groin: then pass the handle of the forcep into the vagina, with

the point of the hook looking upward or towards the point of the inserted finger, until it comes in contact with it; then, by altering the position of the hook, and making it take the place of the finger, it may, by a gentle pressure, be made to place itself into the groin; when thus placed, we must aid the descent of the breech by pulling at the external extremity of the instrument, in the direction of the axis of that part of the pelvis through which the breech is to pass.

852. Baudelocque proposes blunt hooks to join something like the forceps for this operation; but this I do not think necessary; for when both groins can be commanded, and it is essential from the nature of the difficulties attending the labour, to act upon both of them at the same time, both handles of the forceps, I am of opinion may be employed advantageously, without being united—but I confess this to be conjecture; for I have had no experience of it.

853. When the breech is situated obliquely at the lower strait, we should apply the force whenever practicable, to the groin which offers to the sacro-iliac symphysis, or side of the sacrum; as this hip should advance faster than the other, that it may arrive at the bottom of the vulva, to escape through the os externum. When placed transversely, we may act upon either, or both groins, until the breech is about to pass under the arch of the pubes—when here, we should endeavour to depress one of the groins, that the ilium may come under the arch, instead of the sacrum and spine, unless it does this spontaneously.

SECT. II.—2. *Position of the Child.*

854. The child may present so untowardly at the superior strait as to be unable to engage in it, in consequence of a severe obliquity of the uterus. In such case, one of the hips may only present itself to the opening of the pelvis; of course, the labour, if not rectified by changing the position of the woman, will be either dangerous, or very tedious and painful. This situation of the hip will, of itself, offer great embarrassments to the woman delivering herself, and often render it proper that

we interfere without delay ; but when this position is attended with either of the accidents heretofore enumerated, it becomes indispensable that we bring down the feet ; provided, the conditions on the part of the uterus just mentioned, do not render that operation improper.

855. Should the breech present in the fourth position, and this be ascertained immediately after the rupture of the membranes, it would, I believe, always be best to bring down the feet ; provided, the uterus be sufficiently relaxed to permit the hand to pass without difficulty ; but should this presentation be complicated by accident, it will become absolutely necessary ; but it must be under the provisions just stated.

SECT. III.—3. *Size of the Breech.*

856. The breech may be absolutely large, or relatively so as regards the pelvis ; in either case, the same difficulties will be experienced. If the labour be left to itself, it may consume so much of the woman's strength, without much advancing the labour, as to render her situation precarious, or even dangerous, without adventitious aid. This case may be complicated by any of the accidents enumerated ; or its difficulties may be increased, by being a fourth presentation.

857. When sufficient time has been given without advantage to the labour ; and the cause of the delay satisfactorily ascertained, we should interpose and save the patient much unavailing pain. The nature of the assistance to be given must depend ; 1st, upon the condition of the uterus, and the degree of advancement of the breech ; and 2d, whether it be still contained, or has escaped, from the mouth of the uterus. In the first case we must bring down the feet so soon as the uterus will permit ; and in the second also, provided, the breech is still within the uterus ; and the waters but recently drained off ; but if it has escaped from the orifice of the uterus, we must employ the fingers, the fillet, or the blunt hook, as may appear expedient.

SECT. IV.—*The Mode of bringing down the Feet, in the First Presentation of the Breech.*

858. The success of this operation very much depends upon the choice of the hand to be employed. The rule on this subject is extremely simple—the hand, the palm of which will answer to the anterior parts of the child, is always to be used. In this presentation then, the left hand will be the proper one for bringing down the feet. It must be introduced with due attention to the rules already laid down, when speaking of turning, and passed upward before the right sacro-iliac symphysis, until it can grasp the breech—this must be raised, and carried into the left iliac fossa. We must then search for the feet, by tracing the posterior part of the thighs and legs, until we arrive at them; they must be seized as before directed, and brought down.

859. If but one foot can be obtained, we may attempt the delivery, by acting upon it alone; but when practicable, it is best to search for the other, unless it will require too much force. If the breech be small, it will rarely happen that much difficulty will be experienced in doing this; but this is precisely the case where we can almost always succeed, by exerting a force upon the one. When delivering by one foot only, we should be very mindful of the direction in which we act upon it—we should always direct our force so as to carry the leg towards the retained one, lest we fracture or dislocate the thigh; and, when the folded leg begins to appear, we may assist it by acting with a finger on the groin. When the breech is without, we must conduct the body along, until the other leg and foot come down of themselves.

860. When the breech is still within the uterus, and is about to occupy the lower strait, or actually in it, we can very often, should the necessity of the case require it, gain the feet, and thus expedite the labour; provided, the waters have not been long drained off; when the pains are, and have been feeble; and when the breech is not of an unusual size. But if the breech has passed the os uteri, we must not think of this expe-

dient—when thus situated, the fingers, fillet, or blunt hook, must be our aids.

SECT. V.—*The Mode in the Second Presentation of the Breech.*

861. A proper choice of the hand must be made in this presentation, as well as in the preceding—when the emergency of the case requires bringing the feet down, we must make use of the right hand instead of the left, and conduct the rest as just directed. If but one foot can be obtained, we must proceed with it to finish the labour; but always recollecting the conditions which would render this partial action safe and proper. Should the breech, however, have escaped from the mouth of the uterus, it would be highly improper to pass up the hand with a view to bring down the feet—the aids just indicated (845) must then be resorted to.

SECT. VI.—*The Mode in the Third Presentation of the Breech.*

862. The spine of the child, in this presentation, is to the symphysis pubis, and the abdomen to the projection of the sacrum—this position is less favourable than the first and second, owing to the risk of having the head to engage with its greatest length parallel to the small diameter of the superior strait: this, however, is not a necessary consequence of this presentation, as we have already observed.

863. In this presentation, either hand may be used. When required to act, the hand must take a firm hold of the breech, as directed for the raising of the head, and carry it forward and upward, over the pubes, and then pass the hand along the legs, until the feet can be reached; they must now be brought down, as heretofore directed; only observing, when the feet are entirely without, to turn the breech so as to make the body have an oblique position as regards the pelvis.

SECT. VII.—*The Mode in the Fourth Presentation of the Breech.*

864. I have already remarked how very rare this presentation is; but when it does occur, there can be no doubt of the

propriety, if called to the case in proper time, of always searching for the feet. In this presentation, either hand may be used as mentioned for the third; only observing, that the breech, in this case, if possible, must be carried to one of the iliac fossæ; to the right, if we use the right hand, and the reverse, that the body may enter the superior strait obliquely, so as to give the chance to the face to turn from the pubes—after this, we search for the feet, and bring them down as directed. When the breech is without, we must attempt to give an oblique position to the body, if it has not already acquired it.

865. It may be proper to observe, that all these cases are to be subject to the rules I have endeavoured to inculcate for the safety of the uterus: 1st. That no severity of accident can justify forcing a passage into the uterus, with an intention of gaining the feet, when the os uteri is unyielding. 2d. That when the breech is very large, the waters long drained off, the uterus firmly contracted on the body of the child, and much force would be required, (whatever address the accoucheur may possess,) the feet must not be sought for; but the labour must be terminated by the other agents already indicated. (845) 3d. But when the uterus is in proper condition; and the membranes just ruptured, or the contractions not severe, though the waters may have escaped some time, we should lose no time by temporising, when the nature of the accident is such as to render interference important to both mother and child.

CHAPTER XXV.

ON THE USE OF THE FORCEPS WHEN THE BODY OF THE CHILD IS DELIVERED, AND THE HEAD RETAINED.

866. THE risk which a child always runs when its body is delivered first, is such as to make us consider all such labours hazardous, whether the necessity for this consideration be

either natural or artificial. I have already adverted to this; but it may still be useful to repeat, that the danger to the child arises, 1st, from the severe extension to which the cervical vertebræ may be liable, when it is necessary to employ force for the deliverance of the head; 2d, the almost inevitable compression of the cord; especially, if the head be large, either positively or relatively, and thus occasioning delay; or if it be caught between the head and pelvis, or if it be tightly stretched by its passing between the legs of the child, and we are unable to relieve it, &c. These causes pretty constantly operate, where the head is the last part to be delivered, unless the pelvis be very ample, or the head small, and the external parts readily disposed to yield, and the mechanism of this part of the labour well understood.

867. These considerations early engaged the attention of Smellie; and the result of his deliberations was, the practicability of applying the forceps with success in such cases. Accordingly, he has left upon record his method of employing them, and the success attending them. He has been followed by De Leurie, Baudelocque, and others. I am every way disposed to do justice to the merit of this application of the forceps; and consider it as a real improvement in the art, whenever their application is guided by experience, or their employment properly limited.

868. It will be readily admitted, by all who have essayed the application of these instruments, with a view to deliver the head when the body was delivered, that it is attended with no inconsiderable difficulty, even in the most simple of the cases in which they may be required; how much more, then, when the head is remote from the inferior, and perhaps tightly wedged in the superior strait; in both of which cases, the use of these instruments is recommended. I did not succeed in the two or three instances in which I employed them, under the circumstances described by Smellie and Baudelocque, and as represented by the former in his 35th, and by the latter in his 14th plate. I will not say that their application is impracticable, because I failed; especially, as both Smellie and Baudelocque declare they have succeeded: but there are several

serious difficulties to oppose their application: 1st. When the head of the child is at the superior strait, and engaged with its greatest length between the pubes and sacrum, or even the contrary, the axis of this strait is so much in advance of the inferior, that it seems almost impossible that the perinæum should be so far pressed back, as to permit the forceps to correspond with it, that they may securely grasp the head; 2d. That if the head be even grasped by the forceps, it must be in the direction, or very nearly so, of the perpendicular diameter of the child's head, instead of the oblique; a circumstance of great consequence to the success of the operation; 3d. This disadvantageous position of the head for the use of these instruments, may lead to the belief that they are well placed, because their handles unite without difficulty; whereas, they but very partially embrace the head; and, if an effort be made to extract, they will most probably slip, by which the uterus, vagina, or bladder, may be severely injured.

SECT. I.—*Cases proper for the Forceps.*

869. From these considerations, I would confine the use of the forceps, in the cases under consideration, to two situations of the head, and those at the inferior strait. *a.* The first when the vertex is behind the symphysis of the pubes, and the face resting on the face of the perinæum; *b.* The second when the forehead is behind the symphysis, and the vertex lying towards the hollow of the sacrum.

a. Mode of Operating in the First Case.

870. It will rarely happen that the forceps shall be indicated in this situation of the head, since, when it arrives here, it may be almost always delivered by soliciting the voluntary powers of the woman; by depressing the chin; and by a judicious force exerted upon the trunk. But at this moment, the woman may be attacked by some accident; or the head may be very large, or the pelvis narrow; the cord may be in danger of compression; the woman may be too feeble to make any effort to relieve herself, and it might require too much force for the

safety of the child to attempt its deliverance by the body alone, yet the welfare of it may require immediate delivery.

871. When the circumstances of the case will most probably be profited by the use of these instruments, we should apply them, if at hand, without loss of time,* in the following manner: the body of the child must be carefully wrapped up in a cloth, and carried over the mons veneris as far as it can be done without injury to its neck, and supported there by a careful and judicious assistant; the chin of the child should be depressed, and the male branch of the forceps be passed to the left side of the pelvis, depressing the handle pretty suddenly against the perinæum; this must be more or less, as we may find it necessary to make the blade conform as much as possible to the oblique diameter of the head; when this is arranged, the handle must be sustained until the other blade is passed on the opposite side of the pelvis, and made to correspond with its fellow—the handles must now be locked, and drawn in such direction at one and the same time, as shall tend to disengage the vertex from behind the pubes, and at the instant raise the face along the perinæum, until the chin and other parts of the face successively pass through the os externum.

b. Mode of Operating in the Second Case.

872. The only difference in the mode of operating in this from the first, (871,) is, that the body of the child must be car-

* It might on some accounts be proper to be provided with these instruments, whenever we have leisure to send for them, in all such cases as we cannot decide positively they may not be necessary. I was once made particularly happy by having them with me, when sent for to the aid of a midwife. The patient was pretty far advanced in life before she married; she had lost three children previously, and was now in labour with a breech presentation. The child was very large, and required the fillet—the breech I delivered, the body followed, and no difficulty was experienced until the head was stopped at the inferior strait, in consequence of its size. I employed as much force as I dared, and the woman exerted herself powerfully; but the head, though well situated, could not be made to pass. I was very anxious about the life of the child; and the poor mother begged that I might save it at any expense of pain to herself, as she “had lost all her poor babes before.” I determined to try the forceps, as I had brought them with me; and did, with the happiest effect.

ried backward, and gradually depressed as the head disengages backward.*

CHAPTER XXVI.

OF THE PRESENTATIONS OF THE FEET.

873. THE presentations next in the order of frequency, are the feet; these presentations are with propriety ranked among the natural labours, because the woman is enabled to deliver herself. Baudelocque says that "those labours in which the child presents the feet, considered as natural, are not the most advantageous; but, as preternatural, they must be esteemed the easiest and the most favourable." In this I cannot exactly coincide; at least as far as regards the safety of the child, which, in my opinion, ought always to enter into the calculation; for its welfare must be regarded as constituting at least a part of what is to be understood by the words "most favourable." I have elsewhere (825) assigned my reasons for this.

874. Had not the erroneous principle been but too often inculcated, and still more frequently acted upon, "that in presentations of the feet, not to deliver the woman as speedily as possible, was to exercise a cruelty towards her, by permitting her to endure hours of pain, when it was in our power to relieve her in a very short time, by exerting a force by the feet, which would speedily deliver the body," we should have had fewer occasions to complain of injuries sustained by the mother, and fewer opportunities to lament the death of the child.

875. It should be held as a fundamental principle in this order of labours, and all others enumerated under the title of natural, that they must be considered as such in the true sense of the word, at least until the uterus is dilated, and the membranes are ruptured; and after these have taken place, only to consider them as preternatural, or labours requiring assistance,

* Baudelocque advises the forceps in these cases, when the child is dead, instead of the crotchet.

when they are complicated by accidents, or when their progress is retarded by causes existing in the uterus itself, or from the position of the child. Under such circumstances, we are not only justified in aiding the woman in her struggles, but it becomes a duty to do so, in the best, and most efficient manner, the case will admit. But to do so with the greatest advantage to both mother and child; and that the former need not suffer from the effects of ignorant rashness, or the latter fall a victim to it, requires a thorough knowledge of the mechanisms of these labours, as well as considerable address to fulfil the various indications, their different positions create.

876. The presentations of the feet are readily distinguished from all others, by there being no other parts of the child which resemble them; the hands alone bear any analogy; but from them they are easily told by the projecting heels, the short toes, and especially by the absence of the thumb. Baudelocque, whom I shall follow, has divided presentations of the feet into four species—the distinguishing marks of each being derived from the part of the pelvis to which the heels and toes are directed.

SECT. I.—*Species of Feet Presentations.*

877. In the first presentation, the heels are a little anterior to the left acetabulum, and the toes are directed towards the right sacro-iliac symphysis; the breast and face are above and over it, while the back is placed to the anterior and left lateral part of the uterus. It may, perhaps, be proper to remark, that in these presentations, the feet and legs do not hang loose and dangle in the pelvis, but, on the contrary, the thighs are flexed against the abdomen, the legs folded against the thighs, while the heels are almost always placed against the breech, or are in its immediate vicinity. I thought it best to state this, as the difficulty which is sometimes experienced in bringing down the feet, will be much better comprehended. It must also be borne in mind, that both do not always present at the same time, and that they are so moveable in the pelvis oftentimes, that it is more difficult to locate their exact position, than to distinguish it is the feet that are presenting.

878. In the second presentation, the heels are behind the right acetabulum, or a little forward; the toes look toward the left sacro-iliac symphysis; while the breast and face are above and over it; the back is placed to the right anterior portion of the uterus.

879. In the third presentation, the heels are to the symphysis pubis, and the toes toward the sacrum; the back is placed to the anterior part of the uterus, while the breast and face look towards the lumbar column.

880. In the fourth presentation, the position of the child is exactly reversed; the heels are to the sacrum, and the toes to the pubes; the back towards the lumbar column, and the breast and face are turned towards the anterior part of the uterus.

881. Nature seems to have been particular in the arrangements of the presentations of the breech, feet, and knees, by making the numerical order of each resolve themselves into one general position, so soon as the legs are without; so that the most favourable situation, or the first presentation of the breech, of the feet, and the knees, have each of them the legs in precisely the same situation when delivered: so true is this, that did we not arrive before this happened, we could not tell with which of these presentations the labour commenced—the same may be said of all the rest. We are, therefore, much indebted to Baudelocque, for his ingenious and natural arrangements of these labours. It is also remarkable, that the frequency and infrequency of each of these different species of natural labour, should be with few exceptions in the order of their numerical succession: thus, the first presentations of the breech, feet, and knees, are more frequent than the second; the second more frequent than the third; and the third most generally more frequent than the fourth, &c.

882. Why is it that we meet with more presentations of the feet in premature deliveries, than in those at full time? or, is this mere coincidence?

SECT. II.—*Preternatural Labours in which the Child presents the Feet.*

883. The causes which may render a labour preternatural, in which the child presents the feet, may be any of those already enumerated, or may depend upon some irregular and inefficient action of the uterus, or the mere position of the child itself. Should any of the accidental causes complicate a labour in which the child presents the feet, we must consider it a sufficient reason for interfering with its progress; and we must expedite the delivery by bringing down the feet; the mode however of doing this, will depend upon the particular presentation with which we have to contend.

884. From the position which the breech almost always assumes in these presentations, it will be readily perceived, that one cannot well descend without the other, and that it is the width of the breech, thighs and legs, which offer together at the superior strait; hence, they will sometimes become jammed, at this part, and the feet or foot will cease to advance—now this situation of things may happen, when the difficulties of the labour may be increased, by some one of the accidents already enumerated; (625) or this may exist alone, and become a sufficient reason for manual interference. Or the uterus may, from any of the causes we have already acknowledged as capable of such effect, be incompetent, though no embarrassment be created by position, to force the parts down to the bottom of the pelvis. Or the fourth presentation itself may be considered as essentially bad.

885. Under either of these circumstances, we are obliged to convert an otherwise natural, into a preternatural labour. It will be constantly kept in mind, when I recommend taking hold of the feet, that I always suppose the membranes to be ruptured, and the os uteri dilated, as I have uniformly inculcated for every operation of the kind. I may remark here, that there will be some difference in the mode of acting in footling cases, arising from the circumstance of presentation, or of one or both feet being within reach; but these will be illus-

trated as I proceed. I may repeat here, lest it be forgotten, that the woman is supposed to be constantly placed upon her back, as recommended for all cases of preternatural labours.

SECT. III.—*Mode of Acting in the First and Second Presentations.*

886. I have already remarked, that when the feet are without in both these presentations, they are precisely the same in mechanism as the first and second breech presentations; therefore, I shall only point out the mode of treating the labour until that period, as then every thing must be conducted as directed for those presentations.

887. When it is agreed there is a necessity to expedite the labour, it must be done by introducing the hand into the vagina, if the feet still remain at the superior strait; if this be the case, we pass the hand until we can by a proper grasp possess ourselves of the feet; when secured, we draw them downward; but if this require more force than it would be prudent to exert, we must desist, and act upon the breech by gently raising it up, which will almost always permit the feet to fall down; or at all events, enable us to proceed with them through the pelvis. Should but one foot offer, we may act upon it, and oftentimes successfully, when the child is small compared with the size of the pelvis; but if it come reluctantly, and evidently require an improper degree of force to bring it along, we should cease to act upon it, and search for the other foot.

888. When the second foot is accessible, it is always best to make it descend with the other; and not merely push it up that it may unfold itself along the abdomen of the child; but let it be recollected, when we are obliged to search for the second foot, it is a matter of consequence to make a proper choice of hand; for it may be resting on the margin of the pelvis, or it may be unfolded and high up in the uterus; therefore, in either case, the facility of the operation will very much depend upon the hand—this I well know from experience. The rule in these cases is precisely the same as in the breech cases of

the same numerical denominations; namely, the left hand for the first, and the right hand for the second presentation.

889. The reasons wherefore I prefer having both feet to act upon in these cases, are; first, we can exert the necessary force to much greater advantage by acting with both; second, we run much less risk of doing injury to the limbs; for if we act by one alone, we may chance to hurt it by the force not being divided; third, we can give a better direction to the body as it descends, when it is necessary to effect any change upon its course.

890. The only difference in the mode of acting in the second presentation and the first, is the necessary choice of hand—in every other respect the mechanism is the same.

891. Should more than two feet appear, as in twin cases, in the passage, we must be careful to select those which belong to the same child; this sometimes creates more difficulty than would at first be imagined; for simply selecting a right and left foot, by no means proves they belong to the same body; and if they should not, much inconvenience may be experienced. It is true, this circumstance will rarely occur, as it seldom happens that the membranes of both give way at the same time, or before one of the children is delivered; yet it happens. An instance of this kind occurred to myself; that is, in attempting to bring down two feet, properly selected as I supposed, where there were three, I got a foot of each of the children; I discovered this, however, sufficiently early, to enable me to pass up my hand, and select the proper foot; but not without difficulty.

SECT. IV.—*Method of acting in the Third and Fourth Presentations of the Feet.*

892. If I be permitted to draw a conclusion from my own experience, or take for fact what is stated in the register of "l'Hospice de la Maternité," I find either of these presentations extremely rare, and especially the last. Of the third presentation, I find but three instances recorded in nearly 13,000 cases, in the practice of that institution, and of the fourth but

one. In examining my own practice, I find two of the third, and but one of the fourth presentation.

893. The third presentation is not so replete with inconveniences as the fourth, nor so uniformly fatal to the child; yet it is sufficiently so to make us fear it when it occurs; especially, if the forehead does not spontaneously turn from the projection of the sacrum, and place itself before the sacro-iliac symphysis of one side or other of the pelvis, that the head may descend in a diagonal situation to the lower strait—when it arrives at this place, in this direction, it will rarely happen that the face cannot be made to apply itself to the perinæum at the last period of labour.

894. Should this favourable disposition of the head, however, not take place spontaneously, it points out what should be done, to make the labour more advantageous to both mother and child. Should we have charge of the case sufficiently early, that is, before the feet have descended, and when the membranes have but lately yielded, we may dispose the head to turn to one side, by making the body observe an oblique position in its descent, by turning the toes to one side of the pelvis. Indeed, this would seem to be almost the only period at which we could pretend, with any certainty, to do this by any manœuvre performed on the body of the child; for, after it is either in part or wholly delivered, they would be almost nugatory.

895. We are directed by most writers who have mentioned this case and the fourth, to attempt this change, by giving an extensive twist to the body, for this purpose. Thus, La Motte, Levret, and Smellie, advise this motion to be made, by turning the child's body, under the expectation that the head and face will obey the impulse; without seeming to recollect that in these cases, the head is not very moveable in the pelvic cavity; especially, when the waters have been long drained off, and that to change it would require much more force than can be safely exerted, or a much more extensive twist of the child's neck than is compatible with its safety.

896. When the body is delivered, and the shoulders have descended sufficiently low to permit it, we should immediately

ascertain whether the position of the head be correct or not—should its position be favourable, we should proceed with the labour, as has been already directed for the breech; should it not, we must endeavour to rectify it, by acting upon the face so soon as the shoulders have been cautiously delivered; that is, without having exerted a force upon them, sufficient to jam the head in a bad direction at the superior strait.

897. Should the head be jammed in the superior strait by any ill-directed force, it must be relieved as quickly as possible, if we expect to preserve the child—this must be done by passing the hand under the head at the bottom of the pelvis, and gently raising it, so as to lift the vertex from behind the pubes, and at the same time turn the face to one side. The side to which the face must be turned, will depend, first, upon the inclination it may have to either the right or left side; choosing that always, to which it most tends; and, second, upon the hand which may be employed to rectify the position, when no inclination toward one side or the other is observed; if the right hand be used, it will be easiest, *cæteris paribus*, to turn it toward the left, and the reverse.

898. Before, however, this reduction is attempted, it will be well to have the body of the child carefully raised by an assistant, towards the abdomen of the mother, that the hand may be introduced with more certainty and facility; care being taken in doing this, that the head is not drawn down, by the body being carried up. When the position of the head is adjusted, we must act as has been directed in such cases for the breech.

899. In the fourth presentation, we can scarcely expect to improve its position, unless we are very early with the patient; that is, immediately after the yielding of the membranes, and have, at the same time, the *os uteri* sufficiently dilated to enable the child to obey the direction we mean it should take. Unless we can take advantage of this period to move the face toward one of the sides of the pelvis, I am disposed to believe, that very little can be done, until the shoulders are without—except indeed the head be small compared with the pelvis; in this case there is very little necessity for assistance, as it will pass, face upward, under the arch of the pubes, without much difficulty.

900. When the shoulders are without, I am sure it will *sometimes* succeed, to turn the face towards one of the foramina ovalia; the occiput, by this change, will descend a little, and offer itself toward one of the tubers of the ischia, or a little obliquely as regards the lower strait; and may, by a well-directed force, aided by the voluntary contributions of the mother, be made to escape in this diagonal position.

901. I would always recommend to the young practitioner, in cases of such very doubtful issue to the child; and more especially, in the fourth presentation, to advertise the friends of the patient of the risk the child must inevitably run in its delivery, that no exorbitant hopes may be entertained, of eventual safety.

902. There will be, of course, the same propriety in using the forceps in any of these cases, as was expressed for their employment, in breech cases.

CHAPTER XXVII.

PRESENTATIONS OF THE KNEES.

903. THE presentations of the knees are very rare indeed; and I might perhaps have passed them over in silence, without incurring much censure for the omission. But I have chosen to notice them, *because they are rare*; and because they are sometimes embarrassing to the young practitioner; for I well recollect my trepidation, when called to a case of this kind, in the very commencement of my practical career. To add to my embarrassment, I was called to the assistance of a midwife, who could not have been well more ignorant of what was proper to be done than myself. I will not pretend at this time to designate the particular presentation of the knees, as I knew nothing about them at that time; I only recollect, that I reasoned in the following manner upon the subject:—"If the feet were without, I should feel little or no difficulty in the case, as

I once attended a labour of this kind successfully; and it cannot be very dangerous to pass the hand to them, since they must be in the neighbourhood of the knees." With these reflections, I passed a hand into the vagina, and tracing the legs, soon obtained the feet, which I had the *good luck* to bring along, by accidentally (this it must have been, for I had no principles to direct me) disengaging the knees from the margin of the pelvis, against which I now know they must have butted; and terminated the labour successfully to both mother and child, but with severe agony to myself.

904. These presentations are more unusual than any I have hitherto considered; not occurring oftener, perhaps, than once in a thousand or more times. They are less favourable than any of the presentations I have classed as natural; and agreeably to Baudelocque, they may present in four ways:

905. In the first presentation of them, the legs are to the left side of the mother, and the thighs to the right.

906. In the second, the legs to the right, and the thighs to the left.

907. In the third, the legs under the arch of the pubes, and the thighs towards the sacrum.

908. In the fourth, we find the reverse of the third.

909. The mechanisms of these labours are precisely the same as those of the feet; for the latter must be quickly developed, if the labour proceed; and then they are reduced to footling cases.

910. The knees may be distinguished, when together, by their similarity, and the roundness of the bony angles they form. When but one presents, which is most commonly the case, it is not so easy; but we may trace the leg, and find by this means the foot, which puts the matter out of doubt.

SECT. I.—*Causes which may render Presentations of the Knees preternatural.*

911. Until the membranes be ruptured, and the uterus properly dilated, a presentation of the knees is to be treated as I have directed for the breech or the feet; if the presentation can be discovered before that period.

912. Baudelocque directs, that we should not in these presentations search for the feet, unless the labour be complicated by some accident; but the difficulties which a woman almost always experiences in delivering herself in these cases, are such as to render it, I think, the better practice always to bring down the feet; especially, in the earlier part of labour, when neither force is required, nor inconvenience hazarded, by the proceeding. I once witnessed a case, where many hours of severe suffering had been experienced, from a presentation of the knees, without its having made the smallest progress, after the first hour or two: the breech and knees had progressed together in such manner as to completely occupy the pelvis; several pretty severe attempts had been made by the midwife, as she herself declared, to make the knees descend, by acting upon them, to the serious injury of the child. After this period, I was requested to visit the patient. I found the presentation to be the first; but the breech had descended so much as to carry the knees against the right sacro-iliac symphysis, and thus prevented the farther progress of the labour. I introduced the right hand, and with some exertion was enabled to raise the breech sufficiently to permit the feet to fall down near to the os externum; the knees were then readily removed from their position, and the delivery speedily effected.

913. Now, as there is no security that the breech will not descend in proportion to the advancement of the knees; and if it do, the knees will almost certainly be arrested against some portion of the pelvis; in which case the contractions of the uterus and the efforts of the woman are almost sure to be unavailing, though continued for hours, I think it always best to bring down the feet and knees, by pushing up the breech, whether the case be free from, or complicated by, any of the accidents which might happen it, unless when the os uteri is sufficiently dilated, the feet are found to unfold, or the knees to advance: then we may trust the labour to nature.

SECT. II.—*Mode of operating in presentations of the Knees.*

914. When we attempt the relief of the woman in such cases, I am decidedly of opinion we should commence as early as the

state of the uterus will permit; and especially, when it may be either the third or fourth position; in either of which, however rarely they may happen, we should experience all the inconveniences which are found in the third and fourth presentations of breech and feet, with the contingency of the knees stopping in their progress, and at a time when it might be either difficult or dangerous to attempt making the changes upon the direction of the body, so important to the safe delivery of the head.

915. Baudelocque recommends pushing up the knees when we attempt their reduction; but, so far as I am capable of comparing the two methods, I think acting upon the breech the better plan. ;

916. He also advises the employment of the fillet, or blunt hook, for the delivery of the knees—I confess I have tried neither—but it appears to me they cannot in every position of the knees be employed with advantage; but in one I think they may aid (that is, the fourth), when these parts have descended low in the pelvis; as then the direction necessary to the delivering them will be the one, and the only one, we can give them by either fillet or blunt hook. The proper hand must be employed, when we attempt to raise the breech, or we may fail in the attempt to liberate the feet and knees—in the first presentation, we must use the right hand; in the second, the left; and in the third and fourth, either.

CHAPTER XXVIII.

OF RIGIDITY, &c., OF THE SOFT PARTS. AS THE CAUSE OF PRETERNATURAL LABOUR.

917. WRITERS upon midwifery have but very imperfectly considered the rigidity of the soft parts as a cause of difficult or tedious labour—some indeed do not mention it, and others do so, merely en passant, without proposing any specific treatment

for its relief. It is so common a case, that every practitioner must have met with it; but it has failed to make a proper impression, because time and severe suffering have eventually overcome it, though not always with safety to either mother or child.

918. It is decidedly the most frequent cause of tedious labour; and it may occur in such as we regard as strictly natural, as well as in those, which are confessedly preternatural; and when it does occur in the latter, it adds much to their difficulties, while it renders the former tedious, and terribly painful. I cannot pretend to point out the cause of this rigidity; and shall therefore, not lose myself in the wilds of conjecture, but merely state the various conditions under which it may present itself.

SECT. I.—*Species of Rigidity.*

919. *a.* First, it may arise in the mouth or neck of the uterus, from the circular fibres of these parts maintaining their power inordinately long; but not inflamed.

920. *b.* Second, this condition may be attended with inflammation.

921. *c.* Third, it may arise from previous injury done the parts, by either mechanical violence, or inflammation, and its consequences.

922. *d.* Fourth, it may happen from a relative cause; as the disproportionate powers between the longitudinal and circular fibres.

923. *e.* Fifth, it may proceed from the too powerful exertion of the tonic contraction of the uterus, especially of the fundus and body.

a. Rigidity of the first Kind.

924. This species may be divided into three varieties; viz. 1st, when the subject is very young; 2d, where she is advanced beyond the twenty-fifth year; and, 3d, where the uterus is prematurely excited into action.

Var. 1.

925. In this variety the soft parts are found to yield very often with great reluctance; and thus making this labour extremely tedious and painful; it would seem to arise from the incomplete development of the uterus—each of the species and varieties will be best explained, by appropriate cases.

Case First.

“Miss V., aged fourteen years and a half, was taken in labour, January 14, 1790. She had been in pain thirty-six hours before I saw her; that is, she complained for that period, though the pains were not very severe; about twelve hours before I visited her, the waters were discharged; the mouth of the uterus was but very little opened, and the external parts not favourably disposed; the pains now were very severe, and the head was pressed pretty deep into the pelvis; she was extremely costive, and had passed no urine for many hours; an injection was ordered, which operated very freely; the catheter was introduced, and nearly a quart of water was drawn off—she was much relieved by these discharges. An hour was given, in hope that a favourable change might take place in her labour. There was but very little heat in the vagina, for she had been rarely touched. She had, however, by the advice of her midwife, been placed over water, and fumigated with burning onion-shells, but to no purpose.

926. I now bled her fifteen ounces; this produced some little change in the mouth of the uterus, but not sufficient to permit the head to pass, as it contracted and stiffened with each pain. In an hour more she was again bled fifteen ounces; this produced sickness of stomach, which was my signal for stopping. Upon examination now, the parts were found sufficiently dilated; there was a temporary suspension of the pains, but they soon returned, and were of competent force, and much more tolerable—the labour was soon after terminated.

Var. 2.—*Or where the Subject is not young, but with her first Child.*

927. The same general phenomena present themselves in this variety as in the first, but it is generally rather more obstinate.

Case Second.

1798, February 17th, Mrs. —, aged forty, in labour with her first child; she had been long in labour previously to my seeing her, and had suffered much pain—her pains were in quick succession; the waters were still undischarged; the uterus opened to about the size of a quarter dollar; its edges very firm; no disposition in the external parts to relax—she was bled largely (40 ounces,) and was delivered in half an hour after.

Var. 3.—*Or where the Uterus is prematurely called into Action.*

928. This may happen at any period of gestation, or in any subject; but I am only now considering those cases where this takes place at the last period. It would in this variety be highly useful to distinguish it from the two just mentioned; as in the beginning it would require very different treatment. The following marks may serve to detect it: 1st. The unexpended portion of the neck of the uterus may sometimes be perceived by the touch, as at the eighth month or a little after; 2d, the os uteri is rigid, during and in the absence of pain; 3d, the pains are more irregular in their accessions and in their continuance; 4th, no secretion of mucus, nor disposition in the perinæum to relax; 5th, no subsiding of the abdominal tumour; and the knowledge of some violent mental excitement, or muscular exertion having preceded the onset of pain.

929. Should these pains however be suffered to proceed without interruption, it will eventuate in a painful and tedious labour—it therefore should be our first care to appease uterine contraction, by remedies suited to the condition of the patient—blood-letting should be premised, if the pulse *merely permit it*, and without declaring its absolute necessity; especially, as

the case may require repeated and large doses, sometimes, of laudanum. Rest should be strictly enjoined; the bowels should be opened by mild laxatives, if costive; this should be followed by injections of laudanum and water, *pro re nata*—the diet should be mild, and in small quantities. By this kind of treatment we may very often have it in our power to interrupt this disagreeable anticipation of labour, as the following case, among many others, shows.

Case Third.

1790, January 29th, Mrs. M. L.—, aged twenty, pregnant of her first child, after standing all day at the ironing table, was seized with pretty regular pains. There was no subsiding of the abdominal tumour; no secretion of mucus; the *os tincæ* not entirely obliterated. There was very little tension of the membranes during a pain; from these circumstances I was disposed to believe the uterus had been prematurely excited to action. She was ordered to lose twelve ounces of blood; to keep quiet, and receive an enema of a gill of water and a teaspoonful of laudanum—pain soon subsided; she went a fortnight longer, and her labour proceeded kindly, and was not of long duration.

930. In cases similar to the above, much mismanagement frequently takes place, especially when the patient is under the care of an ignorant midwife; as she supposes the attending pains can only proceed from a commenced labour, particularly if her reckoning is nearly expired, she is frequently and oftentimes rudely handled; the uterus irritated, and the whole system stimulated by improper drinks or remedies, with a view to hasten the labour as it is called—the following case is in point.

Case Fourth.

1790, August 11th, Mrs. C. pregnant with her third child, aged twenty-eight, after a severe fright, was attacked with pains; as her midwife was engaged at the time she was sent for, I was called on. From her being disappointed in her midwife, she became very much alarmed, and her pains ceased for

six hours. At the expiration of this period they returned, and the midwife arrived soon after; she examined her and found nothing like labour. She gave her a large dose of laudanum, which not easing her, was repeated in two hours more. Her pains became more violent; she had much fever, attended with delirium.

I was now sent for a second time; upon examining the patient, the uterus appeared evidently to have been forced into contractions by the fright, and these perpetuated by the improper conduct of the midwife; but things were now in such a situation, that it would have been in vain to have attempted stopping their progress.

The mouth of the uterus was thick and hard, and opened to about the size of half a dollar. As there was so much fever, I thought proper to bleed and purge her; these had a good effect, as her fever and delirium were diminished, but the uterus was firm, and not augmented in size since she was examined before (six hours;) she was again bled pretty largely, the delirium went off entirely, the uterus opened, and she was delivered in less than an hour.

931. Had not this patient been bled very liberally, there is every reason to believe her labour would have had a serious termination—she lost in the two bleedings about fifty ounces. This case serves as a contrast to the one just before related; as I believe the bleeding which preceded the anodyne enema, enabled the latter to produce its beneficial effects; and I am also of opinion, that had a bleeding been premised, in this case, the patient would have suffered much less, and gone some time longer.

932. I think it an important rule in the further management of these labours, when pain cannot be suspended by the means indicated above, to abstract as much as possible stimuli of every kind; to have the bowels well opened; and then to allow the circular fibres of the mouth of the uterus to be a little fatigued, before we employ a large or sufficient bleeding to effect the farther dilatation. We may easily know when they begin to be fatigued, by their readily yielding when the finger

attempts to stretch it in the absence of pain. Bleeding alone sometimes quiets this premature motion of the uterus.

c. Rigidity from Local Injuries.

933. It was not until the year 1796 that I learnt the value and certainty of blood-letting in cases of local injury from inflammation, or from a solution of continuity in the soft parts concerned in labour, where in healing they became contracted and otherwise severely injured, though I had so frequently experienced its value in cases where they had obstinately refused to yield to the common agents of delivery, when in the natural condition. The long continued pressure of the child's head during its passage; the ill-judged use, and the worse directed application of instruments; and the reprehensible neglect of the perinæum when much distended—have all given rise to injuries of these parts, more or less grievous. These accidents will retard delivery in proportion to their extent; and if some oppose but a trifling resistance to the passage of the child, there are others, from their severity and extent, that render it impossible without adventitious aid.

934. Cutting instruments have been not only considered as justifiably employed in such cases, but deemed absolutely essential for the termination of the labour,* in many instances where bridles, indurations, and cicatrices have deranged the natural order of these parts, or so disturbed their natural functions, as to render them no longer subservient to their proper uses—hence the necessity of means so severe as the scalpel or bistoury for the relief of the mother and child.

935. I trust, however, this terrible alternative is no longer, or, at least, not so frequently necessary as heretofore; since, it is found, in some of the most distressing and extensive injuries of this kind, to yield in a very short time to the relaxing influence of a copious bleeding. To show the certainty of this remedy, even in the most unpromising cases, I will relate several, where it was employed for this purpose with the happiest effects.

* Baudelocque, &c.

Case First.

1796, June, I was called to Mrs. T——, in labour with her second child. When I arrived, I received the following account of the case from the midwife: “Mrs. T—— has been in labour sixteen hours; the waters discharged six; the mouth of the womb is but little opened; and, when in pain, the os externum seems to close up; the child is as high as ever, though many things have been given to force the labour. She has passed no water for twelve hours, and she is very costive.”

I found her very feverish; complaining of great heat in her abdomen, and violent pain in her head. On examining per vaginam, I found, as the midwife had stated, that the os tincæ was but little dilated; its edges very rigid and hot—as was the whole tract of the vagina; the rectum much distended with fæces, and the bladder, by urine. The head of the child was still above the brim of the superior strait; but its situation could not be exactly determined, as the os uteri was not sufficiently opened for the purpose.

She was bled immediately, to the amount of twelve or fourteen ounces, and an injection was thrown up, which procured two stools, and a discharge of urine. Upon examination, I found the mouth of the uterus more dilated; and I was enabled to determine, that the presentation was a perfectly natural one; and the head lower in the pelvis. The pains were very powerful; the head at length cleared the upper strait, and the vertex was about to turn under the arch of the pubes, but completely enveloped in the uterus—during a pain, the perinæum was much distended; the os externum, instead of yielding to the impulsive force of the uterus, rather closed, so that two fingers could not be retained at once. A seam, or cicatrice, formed a kind of barrier in the vagina; and the head in consequence, was thrown to the right side of the inferior strait; where the parts were so extremely stretched, that I feared at each pain, the head would burst through them, in spite of every exertion to the contrary.*

* The cicatrice just spoken of, was formed by the healing up of an extensive laceration which the patient suffered in her former labour. It ran from the info-

From the oblique situation of the head with respect to the vagina, the os externum, instead of answering to the axis of the inferior strait, was mounted up directly to the pubes; consequently the right side of the vagina, perinæum, and rectum, had to support the greater part of the force exerted by the uterus and its auxiliary powers. In order to counteract their influence, I supported the external parts with my hands; and made, during each pain, a strong pressure against the head; directing the woman at the same time to suspend her voluntary powers, as much as possible.

Six hours were spent in this manner without advantage; the os uteri still rigid, hot, and but partially dilated; the os externum not disposed to yield, and the cicatrice as firm as ever. The head advanced, notwithstanding my efforts to prevent it; so that the vertex, covered with the uterus, had partly emerged from under the arch of the pubes. At this period it was extremely difficult to touch the mouth of the uterus; as it had receded towards the sacrum, in proportion as the vertex had descended.

The soft parts were very hot and dry; and I began to entertain serious apprehensions for the patient. I was ten miles from the city; and no one was near, on whose judgment I could rely. In this dilemma I had nearly resolved to divide the parts; believing it preferable to permitting the head to force its way through them; which I began to consider as inevitable; when fortunately Dr. Physick's case of luxated humerus occurred to me; which determined me to try the effects of bleeding, ad deliquium animi. I represented to the friends of the patient, the danger of her case; the *possible* result of the bleeding; and the inevitable one, did it not succeed. They agreed to the trial. I had the patient placed on her feet, while the midwife

rior termination of the left labium, to about the termination of the sacrum. I judged of the extent of the injury, by the cicatrix; and this could be traced to this point. Conversing upon this case, some time after, with the practitioner who had delivered her before, he confirmed my supposition. It was a long time before the wound healed; and the woman's health suffered much from the excessive, and long-continued discharge; but from this she recovered; and was, when I was called to her, apparently in robust health. She was about twenty-two years of age; of short stature, and rigid fibre.

firmly supported the perinaeum, &c. A vein was opened, and allowed to bleed, until she fainted.* She was now placed on her side, in the bed.

On examining her, every thing appeared better; the external parts were perfectly soft and yielding; and the os uteri pretty fully dilated; but no pains succeeded, during the time I thought proper to wait; (which was half an hour, the patient continuing very faint all this time;) the parts being now in a proper situation for delivery, I introduced the forceps; and delivered a living, and healthy child. The parts yielded very readily without laceration; and the woman had a rapid recovery.

936. As cases of the kind I am now considering, are highly interesting; both from the extent of injury done to the parts, and their rarity, I trust I shall be excused for detailing another; especially, as the mode of treating them is as certain, as it is novel.

Case Second.

On the 12th September, 1798, I was requested to visit the wife of Samuel G., in consultation with Dr. Jones. I was informed by the doctor, that Mrs. G. had been in labour sixteen hours; the waters evacuated themselves early; her pains were frequent and strong; but there was not the least disposition in the soft parts to dilate.†

I examined the patient, and found the os externum scarcely large enough to admit the finger, and mounted against the symphysis pubis, in consequence of the perinaeum being very

* The quantity of blood drawn was upwards of two quarts.

† This patient, like the one whose case has just been related, had also suffered a laceration of great extent; the parts, after a considerable lapse of time, healed up; but so unfortunately, as almost entirely to obliterate the vagina. I was called upon for advice; the woman's situation was truly distressing; the passage, or vagina, was so much contracted, as not to exceed in size a common writing quill: the parts extremely callous; and a continual and profuse discharge of acrid, fetid pus, kept her in a constant state of misery, and ill health. My friend, Dr. Physick, was also consulted: by a persevering use of sponge tents, &c., the parts became sufficiently dilated to admit imperfectly the venereal congress; soon after, she became pregnant; and the consequences of this pregnancy, furnish the above case.

much distended by the head of the child. The os uteri was rigid, and but little opened; a kind of bridle, or small column of flesh ran from the inferior edge of the symphysis pubis, and lost itself in the perinæum below: against this the head was firmly pressed. The head was situated naturally; and so far advanced, that the vertex was about to emerge from under the arch of the pubes, covered with the uterus; and had been in this situation six hours previous to my visit. All that had been done during this period, was the occasional exhibition of laudanum, with a steady pressure against the perinæum, to prevent the head escaping through it. In this situation of things what was to be done?

My ingenious and much lamented friend, Dr. Elihu Smith, of New-York, upon the receipt of the history of the case just related, suggested the trial of an infusion of tobacco in similar cases, as a substitute for such extensive bleeding; affirming the effects were very like those produced by copious blood-letting; such as nausea, vomiting, syncope, and relaxation. I was pleased with the idea; and determined to employ it, the first opportunity—the case under consideration I believed to be as favourable a one, as could well occur; I accordingly proposed the tobacco infusion to Dr. Jones, who cheerfully consented to the trial.

A strong infusion of tobacco, after several ineffectual trials, was thrown up the rectum; it produced great sickness, vomiting, and fainting; but the desired relaxation did not take place—we waited some time longer, with no better success. In the course of an hour, or an hour and an half, the more distressing effects of the infusion wore off; resolved to give the remedy every chance in our power, we prevailed on our patient, with some difficulty, to consent to another trial of it; its effects were the same as before—great distress, without the smallest benefit; the soft parts remaining as rigid as before its exhibition.

Supposing the bridle just spoken of, might have some influence on the development of the parts, we divided it, but without any evident good. We now proposed the remedy that had so completely succeeded in the former case—namely, bleeding

nearly to fainting; to this the patient consented. We placed our patient on her feet; taking care to have the perinæum guarded, during the operation. Upon taking away about ten ounces of blood, she became very faint;* she was immediately laid upon the bed; but the most complete relaxation had taken place; the forceps were applied, and our patient was delivered in a few minutes, of a fine healthy girl. The mother was comfortably put to bed; and every thing went on in the ordinary way, until the sixth day; at which time, she was seized with a violent cholera morbus, and convulsions, (to which complaints she was subject,) and died in twelve hours.

This case, notwithstanding its unfortunate termination, fully establishes the influence of blood-letting in this very distressing kind of rigidity; and proves its action to be different, from that of tobacco; though the latter produces sickness, vomiting, and syncope. I do not think the slightest blame can attach to the bleeding; as the woman was very well until the sixth day; when diseases to which she was subject, supervened, and carried her off.

Case Third.

On the 26th September, 1800, I was called in consultation with Dr. Ruan, to a woman in labour. She had been twelve or fourteen hours in travail with her second child.† The pains were frequent and strong; the waters had been discharged some time; the head was favourably situated, and completely occupied the vagina; the perinæal tumour large; the os externum, which did not exceed in size a finger ring, admitted the finger with some difficulty, in the absence of pain; during a pain it would be thrown up against the inferior edge of the symphysis pubis, so as not to admit the finger, or permit it to remain, if it had been previously introduced. Externally, a large cicatrix was found to run to the very verge of the anus; internally, it could be traced farther. This seam prevented the unfolding

* The subject of this case was a delicate woman, and wont to become very faint upon the loss of a little blood.

† With the first she had suffered an extensive laceration of the perinæum.

of the external parts so effectually, that the repeated efforts of the uterus for several hours, were insufficient to make them yield; though, the head had been closely applied to them for that period.

The patient was a strong healthy woman; considerable fever was excited; the pulse was strong, frequent, and hard. I proposed bleeding *ad deliquium*, to which Dr. Ruan consented. A vein was opened immediately; and we took away about forty ounces of blood; but as her pains were very rapid, we were obliged to draw it from her while in a recumbent posture; no disposition to syncope was manifested. This quantity, however, had some effect; as there was evidently a disposition in the parts to relax, and an abatement of the severity and frequency of the pains. A second bleeding was determined upon; and to perform it, while the patient was in an erect position. We effected this with some difficulty; but upon taking five-and-twenty or thirty ounces of blood more, she fainted—she was laid on the bed; and in a few minutes was delivered by the forceps, of a fine healthy boy—the patient recovered rapidly, without accident. About three years after, I again delivered the same person, by the same means.

d. Relative Rigidity.

937. I have maintained, that not only the different parts of the uterus into which it is usually divided, may act separately and independently of each other, but that even the different sets of fibres of which it is composed may do the same: hence that peculiar rigidity I have denominated “relative;” by this we are to understand, that the circular fibres act with a force superior to the longitudinal. This may happen from the latter losing a portion of their strength; which will necessarily give to the circular a relative superiority of force: or it may happen, that the circular fibres from some cause or other, may have an increase of power; which will, of course, make the longitudinal relatively weaker. Whichever way it may take place, the result is the same; for the labour will become stationary.

938. This case may be known by labour coming on kindly, but gradually diminishing in force, after a certain period; by the mouth of the uterus having a disposition to dilate; by its thickening; by the presenting part not protruding during a pain; by pain, extending itself, over the whole abdomen; by a sense of suffocation; by a hard, full, or depressed pulse; by the irregularity of the pains, both in force and frequency—the mouth of the uterus in this case, cannot open, agreeably to the order of nature; though disposed to do so; as the fibres destined to keep it shut, are relatively stronger than those intended to open it.

939. In consequence of this transfer, or peculiar disposition of power, the longitudinal fibres contract more feebly, and transitorily; the mouth of the uterus does not dilate, though not positively rigid; the abdominal tumour does not continue to subside; there is a secretion of mucus, and a disposition in the external parts to relax, which pretty clearly points out the favourable disposition of the mouth of the uterus; but it cannot dilate until the longitudinal fibres have shaken off their torpor; or in other words, not until the cause of this torpor is removed; when this is done, they resume their healthy contractions; and the labour, for the most part, is quickly terminated.

Case.

Mrs. W——, June 10th, 1805, was taken in labour with her tenth child: her pains began smartly, but soon ceased almost entirely—she continued in this situation from ten o'clock in the evening until six the next morning; at this time I was called; I found her with nearly all the symptoms above enumerated; she was bled twenty ounces; pains came on immediately, and she was quickly delivered.

e. Tonic Rigidity.

940. This only takes place after the waters have been a long time discharged—the tonic contraction of the uterus then takes place; and its force will be in proportion to the healthy disposition of this organ, and the time which may have elapsed since

the waters were drained off. I have already remarked upon this disposition of the uterus when freed from its contents ; and stated its high and important uses, to the woman at that time ; I have also referred to the inconveniences to which it sometimes gives rise, when speaking of the causes of preternatural labours, and given a case illustrative of it. Cases of this kind have frequently occurred to me ; but in some I have been obliged to turn, after bleeding, (which was impossible before,) and in one or two others I was obliged to use the forceps.

CHAPTER XXIX.

ON UTERINE HÆMORRHAGE.

941. IN prosecuting our inquiry into this subject, I do not feel myself bound to give a detailed account of the notions entertained by every writer within my reach ; I shall merely pledge myself to the faithful selection of such opinions, and observations, as appear most to merit consideration.

The mode I shall pursue is—

First. To consider very briefly the nature of the connection of the ovum, with the internal face of the uterus.

Secondly. To investigate the causes which may impair this connection, and thus expose the source from which the blood is derived.

Thirdly. To examine into the mode of action of these agents in effecting this lesion.

Fourthly. To point out the several periods of utero-gestation, at which this may take place—and trace the various consequences which may result from these periods.

Fifthly. To notice the mode of treatment under the different stages and circumstances, which may accompany the disease.

SECT. I.—1. *The Connection of the Ovum with the Uterus.*

942. Soon after the ovum is deposited within the cavity of the uterus, we find it connected through the whole extent of its surface, with the internal face of this organ. Both uterus and ovum contribute to this end; on the part of the womb, we find it produce a soft spongy substance called decidua; on the part of the ovum, we discover its external covering or chorion shooting out innumerable vascular fibres—and both, when united, serve as the bond of union between ovum and uterus.

943. The efflorescence on the uterine surface, like that which covers the ovum, is decidedly vascular; and it would seem, that these minute vessels interlock with each other, after a certain period; and this so firmly, that they cannot be well separated without rupture.*

944. It is not necessary to my present purpose, to inquire in what manner these vessels subserve the purposes of fœtal growth: I only clearly understand, that, when the integrity of either is injured, there will follow a discharge of blood proportionate to the extent of injury; the part of the uterus at which it may happen, and the advancement of gestation. Should a large portion of the ovum be detached in the earlier months, the quantity of blood that may issue, will be commensurate with that surface; especially, if it be from the body or

* Mr. Burns (Principles of Midwifery, p. 181, 2d ed.) who is high authority, is of opinion, that a separation of the maternal and fœtal portions may take place. This may be, though not very susceptible of proof; nor is it perhaps of any great practical importance; yet if it be a fact, it should be known. He says, “at times the fœtal and maternal portions separate, and the first is expelled before the second, forming a very beautiful preparation.” I have seen several ova of the kind to which I believe Mr. B. alludes; but their appearance would lead me to a very different conclusion. But, lest I may misunderstand him, I will describe what I have seen, more particularly. In several instances, I have known ova expelled from the uterus, after a considerable continuance of severe efforts, which were decidedly without a vestige of the uterine product attached to them—they were, evidently and indisputably, examples of the ovum being surrounded or covered by the entire product of the chorion, without their having formed any union with the decidua. Their expulsion was not attended by hæmorrhage, though there were slight discharges of blood. I have at the present moment, a very beautiful preparation of this kind.

fundus. If the separation take place near the neck, the discharge will not, perhaps, be so abundant; as this part is considered to be less vascular, than the other portions of this viscus.

945. But the latter of these circumstances will be influenced by the period of gestation. As a general rule it may be said, that the quantity of blood which may be expended, will be in proportion to the advancement of pregnancy.

SECT. II.—2. *The Causes which may tend to destroy this Connection.*

946. In consulting authors upon this subject, we shall find a variety of causes enumerated, as capable of destroying, to a greater or less extent, the connection between the placenta and uterus—and it is agreed by far the greater number, that no considerable hæmorrhage can occur unless this happen. By a few it is believed, that a mere separation of the membranes was sufficient for this purpose; but of this there is no good evidence—and even should it be true, it can only refer to this accident after the fifth month—for, until this time, the whole uterus may be considered as being lined with placenta.

947. In enumerating the remote causes of hæmorrhage, I shall only name such as are most generally believed capable of this effect, either before or after delivery.

Before delivery: 1st, too short a funis; 2d, mechanical violences; 3d, passions or emotions of the mind; 4th, plethora: and after delivery, 1st, atony; 2d, spasm; 3d, humoral engorgement; 4th, unequal contraction of the uterus; 5th, inversion.

948. Though all these causes have been assigned for the disease we are considering—still it is sufficiently difficult of explanation how some of them act to produce it. When violence of any kind is offered a pregnant woman, and she miscarries, or is prematurely delivered, the cause, from its force or extent, at first sight appears capable of the end; and there, all investigation ceases. It may not, therefore, be time ill spent, to inquire into their respective agencies.

SECT. III.—3. *Mode of Action of Certain of the Remote Causes.*

949. And, first, too short a cord. It was the opinion of La Motte, that the cord may be naturally or accidentally too short—and that in either case it may be the cause of hæmorrhage. He gives a case purporting to illustrate this assumption—but confesses it was the first, and only one, he ever met with. The bleeding proceeded from one of the umbilical vessels, at a portion which was folded into a kind of knot, and which yielded, from the accidental shortness of the funis. Levret met with a similar instance. And Baudelocque also mentions a remarkable case of this kind.* It must, however, be confessed by all conversant with the practice of midwifery, that though this may be a cause of hæmorrhage, it must be a very rare one—or the extensive practice of these three celebrated practitioners, would have furnished more examples.

950. It is not at all extraordinary that we should have only a few cases of this kind upon record, since it is not easy to perceive how it can take place. Though the cord may be very short, either naturally or accidentally, still there must be great difficulty in breaking it by any effort of the child; for if the waters be preserved, the specific gravity of the child and them, will be so nearly in equilibrio, that the weight of the child may be considered as next to nothing—so that whenever the cord is put upon the stretch, the child will instantly move towards the force; and thus destroy its influence. If, on the other hand, the uterus be emptied of the waters, it would almost instantly embrace the body of the child so firmly, by virtue of its tonic contraction, as to render it almost immovable; and consequently, it could not exert so much force as to injure the continuity of the cord. We may then safely conclude, that if it take place, it must be attended by such a combination of circumstances, as will always render it of extremely rare occurrence.

951. Another inconvenience is said to arise from too short a cord; namely, a separation of a portion, or even the whole of the placenta during labour. Leroux says “that the placenta

* Midwifery, par. 1084.

may be separated entirely, or in part, in consequence of too short a cord. 'This case,' he says, "is met with in practice, and he is persuaded that the greater part of the floodings which happen during labour, after the escape of the waters, and when the head is in the lower strait, and the pains almost useless, has no other cause."* I was not a little surprised at this declaration, as I did not recollect a single instance, nor could I find one among my notes, where the hæmorrhage was attributed to this cause. And I am of opinion, that whenever too short a cord shall become a cause of flooding before delivery, there must exist, at the same time, a preternatural feebleness of union between the placenta and uterus: for, if the usual adhesion obtain, the cord would break before the placenta would separate; as the force which it must employ upon this mass, would be at right angles with its surface, and would require a much greater power to separate it, than could possibly be exerted by any movement of the child; more especially, at the time indicated; namely, after the discharge of the waters.

952. I grant, too short a cord may be extremely inconvenient, and create considerable embarrassment at times; especially, after the head is protruded through the external parts: at this time all the accidents stated above may happen; indeed can only happen then.

953. Secondly, mechanical violence: Thirdly, passions or emotions of the mind: Fourthly, plethora. Each of these causes may produce uterine hæmorrhage; and perhaps all have. However, the mode in which they effect this, is not so well understood as it deserves to be—the whole of these causes have one common operation upon the system—they all induce an increased force of circulation; and this is generally considered sufficient, under certain circumstances, to produce the evil in question. It has been thought, that whatever gave an increase of force or velocity to the circulatory system of the mother, must almost necessarily, in consequence of the large size of the hypogastric and spermatic arteries; the short distance they have to travel before they arrive at the uterus; together with

* *Pertes de Sang*, par. 162.

their great increase in that viscus as gestation advances; very much affect the condition of the ovum within its cavity—that the arterial vis à tergo must act mechanically upon the ovum; and by mere force of circulation drive it from its connection with the uterus—that plethora must act pretty much after the same manner—and, as a proof of this, it is said, that the periods at which the menses are wont to return, are those at which abortion is most readily provoked; for, at these times, though the uterus is impregnated, and this discharge has ceased, still the blood is sent in greater abundance than usual, until the demands of the embryo are such as to employ it, without suffering the vessels to become engorged.

954. But those who reasoned in this manner, did not seem to have a very clear idea of the nature of the union between the ovum and the uterus; since, they differed as to the mode. While some insisted that the blood was transmitted, *pleno rivo*, by continuation of canal from the mother to the placenta, others did not think this necessary; as a mere turgency within that mass was all-sufficient for the end proposed. Though I do not mean to deny altogether the influence of an increased circulation, I am disposed to limit its agency very much in producing a separation of the ovum from the uterus, either in part, or entirely.

955. For, if a mere increase of circulation is all that is required to effect this end, no woman would escape abortion, who may labour under high arterial action—thus, fevers of all kinds should be followed by this accident; but this is contrary to all experience. I am obliged then, to suppose something more necessary than an invigorated circulation, to produce this effect.

956. I might, indeed, insist that nature has attempted, and with some success, to guard against this contingency, by the peculiar construction of the uterus itself. For in the early months, there is comparatively but a small quantity of blood sent to the uterus; because, the necessity for it is comparatively small—and the force of even this is diminished, by its passing through vessels of small size, and much folded, or convoluted.

957. This provision is highly important to the welfare of

the ovum at this period ; as its connection is not so well established as it afterwards becomes, as gestation progresses. The liability, therefore, to abortion, is greater in the early, than in the later periods of pregnancy—for as the union between the chorion and decidua is not well confirmed—as the attachment of the latter to the internal face of the uterus is proportionably slight—and as the extent of surface which the ovum now presents, is very small to that which it offers in the more advanced state of pregnancy ; and, as it can of course be affected by smaller causes, it will be seen, that a separation will be more easily induced, and prove much more injurious to the well-being of the embryo, than a larger one at another stage.

958. In the more advanced periods of utero-gestation, the circulation becomes freer ; and the vessels pretty rapidly increase in size.* Yet, as I have just intimated, the woman is not so liable to the accident we are considering—now, were nothing more required to induce hæmorrhage than an increase of circulation, why should it not more readily occur at this time, than earlier ? Since it must be admitted that more blood is now sent ; because, more is required—the vessels larger—and arterial action increased, in the exact ratio of the augmentation of the uterine vessels.

959. To comprehend this, we must advert to another part of the uterine economy, in which nature appears to have been studious of the safety of the ovum, by a new provision in organization. Thus, however much the vessels of the uterus may become augmented in size, those which directly administer to the necessities of the fœtus do not alter in the same proportion. There is every reason to believe that the relative sizes of these two sets of vessels bear a much nearer relation to each other in the early, than in the later months of pregnancy—so that the risk of injury, from an impetuous circulation, is diminished instead of being increased.

960. It must, however, be understood, that a given space of exposed uterine surface, will yield blood (*cæteris paribus*) in proportion to the advancement of gestation ; because, the ves-

* Baudelocque, &c.

sels which furnish it, have increased in proportion to this advancement. Now, should the deciduous portion of this viscus be removed, it would necessarily expose the extremities of those vessels which yield a supply to an infinity of others that terminate in, and in part constitute, the placenta.

961. I know of no one who has clearly explained the manner in which the blood is conveyed into the minute vessels which constitute the decidua. That there is, however, a peculiar arrangement for this purpose, is certain; because, there is an absolute necessity for it; for, were the blood conveyed to the ovum, *pleno rivo*, by vessels of the same size as those which furnish it from the proper substance of the uterus, or even of much smaller capacity, but subject to the same impulse, it would be liable to injury from every increase of arterial action; which, as I have attempted to prove, is not the case.

962. Besides, injections prove that a portion of the decidua can be completely filled—and that it consists of an infinite congeries of vessels, whose respective size bears no proportion to those terminating immediately upon the internal face of the uterus, or those which are directly interested in conveying blood to the ovum.

963. Is it not more than probable, then, that each vessel which may terminate in the uterine cavity, has a great number of very fine ones corresponding with it, and which in part constitute the decidua? Is this not the mode which nature has adopted to prevent the evils which must necessarily result from a hurried circulation? Is this not partly proved by the fact, that, when the placenta is removed, and the uterus does not contract, we have an overwhelming flooding? And may we not add, that such a contrivance is essentially necessary to the well-being of the ovum, as well as to the security of the woman after she has expelled it? for, were it otherwise, we should always have a rupture of vessels upon the separation of the ovum, or upon the casting off the placenta from the uterus—but, agreeably to this scheme, we have only an exposure of their extremities, which the contracting uterus almost immediately shuts up.

964. The decidua then performs two important offices in the economy of gestation: first, by its great vascularity; as I have

just pointed out; and, secondly, by its sponginess and compressibility.

965. I trust no absurdity is advanced, when I say, that one of the reasons for the cellular and compressible character of the decidua, in the early months of pregnancy, is probably that it may obviate consequences, which might result from external violence, or internal impulse, to the feebly fixed ovum, were it otherwise. By its interposition and softness, vibration, however excited, will in part certainly be arrested; and, in more advanced gestation, the same immunity from risk of this kind will follow, from the peculiarly soft and yielding texture of the placenta—for, at this time, injury could only happen from a separation of one of its portions; as that of the membranes would yield little or no blood. (946)

966. From what has been said, I think it is rendered probable that something more is required than an increased force of circulation, to effect a separation of the ovum in the early months, or of the placenta in the more advanced periods of pregnancy—and that something, I believe to be uterine contraction; as without this, I am at a loss to understand the *modus agendi* of the remote causes.

967. I shall not pretend to say how the various causes enumerated above, induce this action—though certain that this effect is produced through their agency, and for the following reasons: 1st. Because mere circulatory impulse appears from the anatomy of the uterus and ovum to be inadequate to produce this effect—since neither abortion nor premature delivery follows as a consequence, when this condition has been present in its highest degree.

968. 2dly. Because, contraction in every instance is essential to the separation of the placenta; whether in abortions, premature labour, or delivery at full time.

969. 3dly. Because we frequently detect this cause, hours, or sometimes even days before the eruption of blood; and because, so long as this contraction continues, hæmorrhage will not cease, unless we diminish the bulk of the ovum, or interrupt its return by proper remedies. (963) I am aware that objections may be raised against the reasons just given; it may

be said, that all testimony is against our first, as we are told by writers from the time of Hippocrates downward, that plethora is frequently a cause of hæmorrhage; and that abortion is often prevented by the loss of a few ounces of blood.

970. Be it so. I also believe such to be the fact. But there is no contradiction in this; since, this condition of the system may act very differently in separating the ovum, than by mere impulse. For the vessels in the proper substance of the uterus will and must partake of the general fulness of the system. They are of course distended more than ordinary; in consequence of which, they must act as so many wedges* to the uterine fibres, which, by being thus stimulated, are made to contract.†

971. To the second, it may be said, that we have no evidence of this, in the cases under consideration. It is true, there is no positive evidence; but we have strong presumption. Thus, in those instances which fall immediately almost under our inspection, we find that the placental mass is separated only by contraction—for, when this does not take place, the after-birth retains its adhesion with the uterus—hence, it is always solicited for this very purpose, when absent, at the termination of labour.

972. To our third, it may be objected, that in many instances hæmorrhage comes on without being preceded or accompanied by the slightest pain. This, though admitted, does not prove there has been no contraction of the uterus; for we well know that pain, is not essential to this end—the uterus may and does contract, and sometimes with great violence, without the addition of pain—and this is well illustrated, by what almost always

* By the action of wedges, I wish to be understood, that separation of the fibres composing the placenta, which must take place, by vessels insinuating themselves between them.

† I cannot perhaps better illustrate my idea of the connection of the vessels of the decidua with those of the uterus, than by comparing them to fine camel's hair pencils; the quill part representing the uterine vessel, and the hairy fibres the vessels of the decidua attached to it; the caliber of the quill being equal to the area of the hairy fibres. By this arrangement, the circulating force will be necessarily so much diminished by its almost infinite division, that little injury can be caused to the ovum, by a mere increase of circulation.

happens after delivery; namely, the spontaneous separation of the placenta as it is termed; in which case, contraction is not accompanied by pain—and, also, by what very uniformly takes place previous to the painful state of labour; namely, the alternate contractions of the uterus, as detected by passing a finger into the os uteri; it will be found by the finger placed against the membranes, that they are alternately tense, and relaxed; and, if a hand be applied to the abdomen, the uterine globe will be felt to harden, and relax, as contraction may be present or absent. Yet during this time no pain is experienced. Furthermore, by that peculiar contraction of the uterus called the hour glass contraction—where the placenta is imprisoned in the upper chamber of the uterus, by the body contracting very forcibly below—and so firmly does it maintain this condition, that it requires no common force to overcome it—yet there is no pain.

973. To the fourth it may be observed, that pain, when it attends, is rather a consequence than a cause—for such disturbance has been given to the uterine economy by an increased circulation, as to call in the aid of pain to free itself from the useless burthen, as the ovum has now become, because of its extensive or entire separation from the uterus; and must be considered rather as an extraneous body, than a living substance. To this I would answer, that it is sometimes strictly true as regards the ovum; and is an event which always takes place, when the embryo or fœtus has lost its life.

974. But does it follow, because pain, (which must be considered only as an evidence of contraction,) generally attends the expulsion of the ovum, that it may not have existed before, or that contractions may not have been often repeated without manifesting themselves by pain? Certainly not. Besides, we know that painful contractions may have accompanied hæmorrhage, for a considerable length of time, without the ovum being destroyed, and the woman, notwithstanding, go her full time. Of this I, as well as others, have seen more than one instance. Yet had these contractions been permitted to continue, they would inevitably have caused abortion.

975. It may also be alleged, that those cases of hæmorrhage

which are accompanied by pain, consequently by contraction, are less dangerous, and of more easy management, than where this does not obtain. Now, were contraction necessary to produce this disease, how is it that it can serve to remove it? This presents no difficulty.

976. The whole truth is not told. Where the ovum is about to be cast off either in the early, or later periods of pregnancy, or, where there is no chance of its preservation from the effect already produced upon it, then contraction is useful, as it proves the healthy disposition of the uterus, so far as this circumstance is concerned. By it, the ovum is completely separated, and cast off; the bleeding put a stop to, and the woman secured from danger.

977. But, let me ask any practitioner of experience, whether he has not uniformly found those cases which have been attended with pain, always of more difficult management, than where none existed? he will surely answer, yes. Now, if this be true, does it not decidedly prove that contraction tends to increase the disunion, or maintain the separation, as well as to have produced the original lesion? This fact is so notorious, that every body who has a view to the security of the ovum, endeavours in the first instance, to diminish or destroy uterine contraction, by the exhibition of such remedies, as may be capable of such effect.

978. It may not be amiss to inquire how far we may have a control, or whether we have any, over uterine contraction, after it has once been called into action. The no small authority of Mr. Burns is against me when I say, I think we have; though confessedly it is difficult of subjection. Yet, as it is a matter of high consequence to ascertain the truth upon this subject, I hope to be forgiven, if I differ from that respectable writer. He says, "when abortion is threatened, the process is very apt to go on to completion, and it is only by interposing *before the expulsive efforts are begun*, that we can be successful in preventing it; for, whenever the muscular contraction is *universally established, marked by regular pains, and attempts to distend the cervix and os uteri*, nothing, I believe, can check the process."

979. That it is a matter of uncertainty, whether we succeed

in our attempts to arrest uterine contraction after it is "established," must be acknowledged. But that it is never attended by success, I cannot concede; nor should the principle ever be inculcated, as it paralyzes exertion, and withholds from the suffering female, a comfort which the attempt rarely fails to give. My own experience would, I think, in more instances than one, declare that I have been occasionally rewarded; and should it fail nineteen times out of twenty, we are surely not justified, in withholding the probable means. I therefore make it an invariable rule to treat the case, as if I expected success.

980. There is one case however, in which I never interfere, with the slightest prospect of a happy issue; and that is, where the process of gestation has unequivocally ceased; and of which I take but one circumstance to be absolutely certain; namely, where the breasts have become tender and tumid, and then pretty suddenly subside. It would here be a forlorn hope to administer remedies with a view of retaining the ovum.

981. I am disposed to believe that this circumstance is the only one, which marks the loss of life of the ovum with sufficient certainty; it is perhaps the only one that is unequivocal; since, all others may be said to be deceptive. This mark was known to Hippocrates; and has, I believe, ever since his time, stood the test of experience. So long then as this sign be absent, I do not relax in my attempts to preserve the ovum. It must however be confessed, that I have known the ovum to be cast off, where this symptom was wanting. Yet I am persuaded, in each of these instances, that the ovum preserved its vitality almost to the last moment; and that its expulsion was owing to the indomitable nature of the contractions of the uterus; I think this has obtained most generally with women who are in the habit of miscarrying. I do not stand alone in my opinion upon this subject.

982. Puzos (*Mem. de l'Acad. de Chirur.* vol. I, p. 203) declares, that neither pain nor hæmorrhage necessarily produces abortion. La Motte (*Obs.* 305) gives an instance where the woman went her full time, after the orifice of the uterus was considerably dilated. And, above all, I may cite Mr. Burns himself, for an example most strictly in point. (*Princip. of*

Mid. ed. 2d, p. 195, in a note.) He relates with seeming belief, that cases have occurred of twins, one of which has been expelled, while the other remained, and the "action of gestation," as he happily terms it, was still maintained to the proper period.

983. Now this is demonstration, that after muscular action has been "universally established," it can be suspended for a considerable time: if this be so under the circumstance of one fetus being expelled, and the uterus, by a cessation of action, shall permit a second to remain until the proper time, I should expect it, *à fortiori*, when the uterus is not so extensively, or so powerfully excited.

984. Besides, I might urge cases related by both Mauriceau, and La Motte, where the uterus was emptied of its waters, and yet the women went their full time, though they were not within six or seven weeks of it.—In these instances, the uterus could not fail to have contracted. I however, must fully agree with Mr. Burns, that where the "action of gestation" has ceased, it would be unavailing, if not injurious, to attempt the preservation of the ovum—for it *must*, sooner or later, be cast off. Denman is also of opinion, that uterine contraction can be subdued. He says, "that experience has fully shown, that women who have had not one, but repeated discharges, with *considerable and regular pains*, have gone to their full time." (Introd. to Mid. Francis's ed. p 472.)

985. The remote causes which I have hitherto been tracing, may with propriety be considered as contingent, or accidental in their application and influence. But one still remains to be noticed, which must be regarded as absolute in its effects, whenever it may chance to exist—I allude to the implantation of the placenta over the mouth of the uterus.

986. The knowledge of this particular location of the placenta, is of modern discovery—and, perhaps, Levret is the first, who decidedly taught this doctrine. Mauriceau, La Motte, and others before their time, met with the placenta in this situation, but they all believed it was a mere precipitation of this mass, after an entire separation from the fundus of the uterus.

987. The whole process of generation is involved in such

complete obscurity, that conjecture is constantly made to supply the place of facts, or of well ascertained processes. It seems that the daring or hardihood of the theorist is augmented, in proportion to the obscurity of the subject, or the difficulty of ascertaining truth—hence, we have nothing to rely upon but conjecture, as to the manner in which the placenta becomes situated over the os uteri—nor shall we, perhaps, ever be more enlightened than at present.

988. Generation, with all its attendant circumstances, most probably will ever remain among the arcana of nature. Lereux* says, “Lorsque l’œuf humain fécondé a parcouru le trajet de la trompe, et est tombé dans le matrice, il se trouve dans une cavité qui est beaucoup plus ample que le canal d’où il sort. Son pedicule, qui doit former le placenta, *et qui est sorti le dernier de la trompe*, reste le plus ordinairement supérieur; cependant, comme l’œuf est encore flottant, le pedicule peut se tourner par quelque accident plus ou moins inférieurement.”

989. Mr. John Burns† follows Lereux very *closely* in his conjectures, or rather his assumption of facts, upon this subject: he says, “as that part of the membranes of the ovum to which the embryo is attached, generally enters last, it follows, that the placenta will be formed originally over that part of the uterus where the tube enters the decidua, at that spot joining with the chorion to form it. But in some instances the case is reversed, and the embryo enters foremost, the rest of the membranes following it. When this happens, then the inner layer of the decidua, which was stretched across the orifice of the tube, and which is afterwards to become the decidua reflexa, will contribute to the formation of the placenta. In this case, by the distention of the ovum, and the yielding of the decidua reflexa, the placenta will come at last to be inserted over the mouth, or over some inferior part of the uterus.”

990. In this manner do these writers account for this unnatural situation of the after-birth. The only difference in their views is, that Lereux, not understanding the nature of the de-

* Obs. sur les Pertes de Sang, p. 13.

† Gravid Uterus, p. 153.

cidua, or perhaps ignorant of its existence,* supposed that the ovum, after it was deposited in the uterus, was unconfined, or rather floating in its cavity, and might in consequence of this, by some accident, turn its "pedicle," which was to become placenta, downwards, though it generally remained upwards, and thus become situated over the os uteri; while Mr. Burns supposes the portion which is to constitute this organ, enters the uterus by some chance first, and thus will have or assume this inferior situation.

991. Here, much is taken for granted; and one conjecture may be as good as another, where nothing can be proved; provided, it be not found at variance with any well-established fact. In this instance, perhaps, hypothesis can do as little mischief as in any case in which it is employed; and as all practical ends are answered by the knowledge that the placenta is sometimes thus engrafted, I shall not attempt a refutation of it; especially, as I have none better to substitute.

992. The order of development of the uterus is so uniform, that a deviation can only result from accident, or such a combination of circumstances as very rarely happens; we can then with absolute certainty declare, that when the placenta is unhappily situated over the mouth of the uterus, a flooding, towards the latter periods of gestation, must be inevitable—hence the propriety of the term "unavoidable," for this kind of hæmorrhage.

993. During the first six months of utero-gestation, the body and fundus alone yield to the distending power of the ovum: after this time the neck is called upon (if I may so term it) for its proportion, as the other parts of this organ seem to refuse any farther supply; in consequence of which, it, in its turn, becomes distended; and, in this act, a portion of the placenta is necessarily removed; and a bleeding, according to the extent of injury, or the number of vessels exposed or ruptured, ensues.

* It is remarkable, that none of the French physiologists (so far as I at present recollect) have faith in Hunter's description of the decidua. Baudelocque, Meyer, and Gardien, declare, if it exist at all, it is only in the early months of gestation, and then perhaps only observable towards the lower part of the uterus. From my own observations, I have no hesitation to declare its existence, but not precisely as laid down by either Hunter or Burns.

994. After discharging more or less blood, the hæmorrhage may cease; or it may be so reduced in quantity, as to excite little apprehension. But this is a false security—it is sooner or later renewed, either by a farther stretching of the neck, by the augmentation of the ovum, or by the removal of the coagulum, which had until now stopped the bleeding.

995. In this manner may things proceed, until near the last stage of pregnancy—or the extent of separation may be such, or the size of the vessels exposed be so large, that the woman's life is instantly jeopardised, and from which she can only be protected by the most prompt and efficient remedies.

SECT. IV.—4. *The Periods of Pregnancy at which Hæmorrhage may take place.*

996. There is no period at which this may not take place, after the first month of pregnancy; since it is presumable, that after the fourth or fifth week, a union more or less strict is formed betwixt the ovum and the uterus, by means of the chorion and the decidua; it must therefore necessarily follow, that a separation may be effected, and a bleeding ensue. Until about the fourth, or between the fourth and the fifth month of gestation, this accident may happen to any portion of the ovum; since, up to this period, the placenta, or what is to become placenta, completely surrounds the ovum.*

997. After this time, there is a portion of its surface which becomes transparent; and that uniformly augments, so long as the uterus continues to increase in capacity. This transparent portion is what is technically called the membranes—and towards the full completion of pregnancy, they occupy a larger surface than the placenta, from which they appear to emanate.

* I am of opinion, that the whole of the vascular covering, until the time above indicated arrives, is destined for, and converted into, placenta. I do not believe that any of these vessels become “blighted;” (Burns's *Gravid Uterus*, p. 196,) as this would seem to be a work of supererogation; and further, that there is a point in every ovum, from which the transparent portion of the membranes proceeds; and that that point is most probably opposite to the insertion of the cord into the placentary mass. (See Chapter on Placenta, &c.)

998. In consequence of this, there is a portion of the uterus from which no hæmorrhage can proceed; namely, where this transparent portion occupies the uterus—this portion increases as gestation progresses—and, of course, the source of flooding is confined to that part which is covered by the placenta—for all the remaining surface is lined by these membranes, and is incapable of furnishing such a quantity of blood as shall be denominated a flooding.

999. As a general rule, then, we find the risk from floodings in proportion to the advancement of pregnancy; because the vessels are larger, and, in a given time, yield a much greater quantity of blood—though the chance of occurrence is in the earlier months. Puzos says, that abortions under the fourth month are rarely fatal—and this observation is perhaps confirmed by the experience of almost every practitioner; provided, a sufficiently early attention had been paid to it.

1000. It must be confessed, that it is very difficult to establish any certain rule upon this subject; since, I have seen as alarming symptoms attend an abortion of six weeks, as I have witnessed from a premature labour of the seventh month; or indeed, at any other period. It may, however, with confidence be advanced, that alarming symptoms do not show themselves as quickly in the early, as in the latter months; and, of course, we have much more time for the employment of proper remedies.

1001. I may farther observe, that it is frequently from neglect, that any danger arises in the early stages of pregnancy: this inattention may proceed from the aversion that many women feel to let any thing be known that has reference to their situation; from an ignorance of consequences; and from a long established opinion, that a moderate discharge is useful; especially, in plethoric women, &c.

1002. Time, of great consequence, is lost by this improper procrastination, and many an ovum has been cast off, attended with threatening hæmorrhage, which, by early attention and proper care, might have been preserved. Besides, the period of gestation has sometimes been permitted to lull the practitioner into dangerous security. Many of considerable expe-

rience maintain, that there is no danger from floodings, before, or at the period of three months. This is decidedly an error; and the sooner it is corrected, the better. Whenever pregnancy is attended by a flooding, there is danger; nor will the period of advancement, however short, protect, of itself, against hazard. Of this, Mauriceau, La Motte, Gifford, &c., give us examples; and I may add, my own experience furnishes the same results.

1003. We should not wait for extreme symptoms, before we act—it is this delay, which in most instances creates the danger; and sometimes it has its victim. The authors just mentioned, and more could be cited, have furnished us with cases, not only of great danger, but of death, before, and at the fifth month. It is wrong, then, to treat such cases with indifference*—for though death may not be the consequence, extreme weakness, or a state of subsequent ill health, or the calling into action of some latent disease, may result from it. In another point of view, it is highly important that early attention be paid to such cases—namely, the prevention of its recurrence: for after a woman has once aborted, there is no security against the second; and by and by, a habit of it is established, which the best devised means within our knowledge is not always able to destroy.

1004. I now come to the more important part of my subject, namely, the mode of treatment. In pursuing my inquiry into this, I shall endeavour to be as explicit as the nature of the subject will admit; for I can only establish general principles,

* Rigby treats this subject with great indifference; and the weight of his authority has doubtless tended to perpetuate, if not to establish, a most erroneous practice in the early months of gestation. He says, “the treatment of floodings that come on before the uterus has acquired any considerable size, must be very obvious; and the consequences of them at that early period of pregnancy are seldom to be dreaded, as, if the patient lose blood from the arm, be kept cool, and in a horizontal posture, and such mild astringents and anodyne medicines be administered to her, as have been found by experience to restrain discharges of blood, they will very frequently stop entirely, and the woman go on to her full time; and if this should not be the case, but the hæmorrhage should still increase, it will seldom increase to a degree to endanger the life of the mother.” (Essay on Uterine Hæmorrhage, 5th ed. p. 2.)

and modes of management; as every individual case will present a shade of difference; and the treatment of this shade of difference, whether important or otherwise, must be very much left to the good sense and judgment of the practitioner. I however trust, at the same time, that little embarrassment will be experienced, as the indications and their fulfilment will be so distinctly pointed out, as to render the one pretty certain, and the other without much ambiguity.

1005. With a view to perspicuity, I shall divide the consideration of floodings into the several periods at which they may appear; and the remedies into their nature, or supposed mode of action. The peculiarities of each period, shall be pointed out; by which means, we can establish more clearly and certainly the mode of treatment. The nature of each remedy shall also be considered; and the period at which it is more especially indicated; together with its mode of action, and the degree of confidence to be placed in it.

1006. In the division of this part of my subject, I shall nearly follow the arrangement of Dr. Denman; as it embraces every essential variety of period at which hæmorrhage, as a consequence of utero-gestation, may take place; this will embrace four periods. 1st. That period of its occurrence, in which the ovum is entirely surrounded by the decidua and decidua reflexa; this will comprehend the first four, or four and a half months of pregnancy. 2d. Into all the remaining period of utero-gestation. 3d. Into the period between the birth of the child, and the expulsion of the placenta. 4th. Into that which may follow the expulsion of the placenta.

1007. This division is by no means arbitrary; it is founded upon principles, and circumstances, that must not carelessly be lost sight of, if we wish either to understand the nature of the disease in question, or become acquainted with its most successful mode of treatment. For instance, until after the time pointed out in our first division, it would be highly improper, under almost any circumstance, to pierce the ovum with a view to the discharge of the liquor amnii; yet, at the second period, it may become an essential remedy. In the third, the woman's safety may depend upon the immediate delivery of

the placenta, and the subsequent contraction of the uterus; while, in the fourth, her life may be hazarded, by having this important mass hastily withdrawn, when the uterus was not in a condition to contract.

SECT. V.—*First Period.*

1008. Until the period of four and a half months, or even to the fifth, the ovum, when separated entire from the uterus, appears to be an ovular, spongy, fleshy mass: it bears evidence of attachment to the parietes of the uterus, in every point of its surface—and seems to show, that at any one part of this, it may be subject to separation; the effect of which will necessarily be, a solution of continuity of more or less vessels; and a consequent hæmorrhage. I have just intimated that this separation may be at any point of the ovum; but the effects will be in some measure different, as it may happen near the neck, or at the body, or fundus, of the uterus. When the separation happens at the body or fundus, before the blood can issue from the os tinæ, it must necessarily loosen the attachment between the spot of commencement, and the point at which the blood issues; it will, therefore, follow, that when this takes place, the chance of arresting a flooding, and preserving the ovum, must be diminished in proportion to the destruction of the connecting medium. But when the disunion takes place near the neck, the mischief will be less serious, though the discharge may be very abundant.

1009. We can probably discover the cause, why an hæmorrhage of great pertinacity and extent, shall sometimes not be followed by abortion; while one of a much less threatening aspect, shall eventuate in it. It is a fact notorious to every practitioner of experience, that, when an hæmorrhage is accompanied by pain, the chance of preserving the ovum is diminished almost in proportion to its intensity; while a flooding, which is not attended by pain, constantly presents a hope that it may escape destruction, however profuse the discharge. (979) Now, when a considerable separation takes place, as must be the case when it commences at the upper parts of the uterus.

pain will be more likely to occur, than when it happens near the neck—hence, we sometimes have pain before the blood issues externally;* the uterus in this instance suffers irritation from partial distention, by the blood insinuating itself behind the ovum; contraction ensues, and the blood is forced downward; and is thus made to separate the attachment between the ovum and uterus in its course, until it finally gains an outlet at the os tincæ.

1010. In consequence of the uterus being excited to contraction, the friendly coagula, which may have formed from time to time, are driven away, and the bleeding, each time, renewed; and this will be accompanied, most probably, with an increased separation of the ovum, until at last, from its extent, the ovum becomes almost an extraneous body, and is finally cast off. Now, the contrary of all this obtains, (at least for some time,) where the point of separation is near the neck of the uterus; since much less destruction can happen; owing to the proximity of the denuded surface to the place of escape, even though this case be attended by pain. The blood, instead of forming coagula above the point of separation, will find immediate issue through the neck of the uterus; and thus a powerful, and mischievous agent will be removed.

1011. It must, then, clearly follow, that there are many cases of severe flooding, in which the ovum may be preserved; owing, sometimes perhaps, to the part being separated by the action of the remote causes; and in others, to the extent of lesion, not being considerable. Now, as we have no unequivocal mark by which the case, which is susceptible of successful treatment, can be distinguished from the one which cannot, it becomes a duty, in the management of such cases, to act as if the ovum could be preserved†—I have, myself, constantly

* Does this not seem to prove the separation to be remote from the os uteri, and serve to distinguish these two cases; especially, in the commencement of hæmorrhage? Dr. Bard says, that “when labour pains precede the discharge, miscarriage can seldom be prevented; when they follow, it sometimes may.” (Midwifery, p. 138.)

† Mauriceau gives an instance, where the ovum was preserved, though there were frequent returns of hæmorrhage, until the third month. (Obs. 69.) Another.

acted upon this principle; and have sufficient reason to believe I have been rewarded in a number of instances by success, when the hope was truly a forlorn one.

1012. It might sometimes lead to happy results, could we certainly determine, *à priori*, when our endeavours would be followed by success, and when they would not—much time might sometimes be saved, and much anxiety be avoided; but as this, with our present knowledge, can be ascertained but in few instances, we shall constantly err on the right side, by supposing that the ovum may be preserved.

1013. As far as my experience goes, I must say, I have never been able in the commencement to determine with certainty, the cases which would eventuate in safety to the ovum, from those in which it would be expelled. This has not been owing, I believe, to inattention to the subject; for I can truly say, much pains have been bestowed upon it; but it is dependent upon the influence of a variety of causes, some of which are so occult, as to elude our search; and to others, so little under control, as to render opposition entirely unavailing. We are told by some, that if the orifice of the uterus be open, and clots freely pass, we may be sure the woman will miscarry.*†

1014. It has been supposed by some, that the *os tincæ* was always soon affected, in cases of hæmorrhage threatening abortion. Spigelius‡ declares he always found it open; but this

where there was almost a continual discharge for five weeks, and that at times very abundant. (Obs. 678.) To these I might add several instances of like kind in my own practice. Puzos declares, that pain and flooding do not always produce abortion. (Mem. de l'Academ. tom. I. p. 211.) Kok declares women have gone their full time after severe hæmorrhages. (See Pasta, p. 215.) Dr. Bard says, "a discharge of blood from the womb, though a very frequent, and generally the most important symptom, is not necessarily followed by miscarriage." (Midwifery, p. 138.)

* Mauriceau, &c.

† Pasta declares this not to be strictly true: he says, there are instances of women going their full time, after severe flooding in the early months, where the uterus was sufficiently open to allow the finger to pass; and others, where abortion has ensued, though the *os tincæ* was a long time closed. (Pasta, *Traite des Pertes de Sang*, Vol. I. p. 28.)

‡ Pasta, Vol. I. p. 38.

neither accords with my own experience, nor that of many others. Mauriceau declares, he could not discover it open, upon the most careful examination, in many instances of flooding.*†

1015. I am rather of opinion that the uterus has been supposed to be open, because clots were expelled from the vagina—but this by no means follows: for the coagula are almost always, perhaps, but certainly much the most frequently, formed in the vagina, when an ovum occupies the cavity of the uterus. Of this the most decisive proof can often be given, in the very early months of pregnancy, by a mere survey of the size of an expelled coagulum; many times it is five or six times the size of the uterine cavity, were this not filled by the ovum. The conclusion, then, that the uterus must be open to give passage to coagula, is not a correct one; nor is the supposition, that after having dilated to give passage to the clot, it will immediately close again, more consistent with fact.‡

1016. From this it appears, that little information can be derived from an examination of the state of the uterus in the commencement of a flooding; for the os tincæ may be completely closed for a long time in some instances, and the ovum be eventually cast off; while in others, it may be naturally a little open, without offering additional risk to the embryo.

1017. But I may safely declare, when the neck of the uterus is distended, so as to resemble in feel the extremity of an egg, that abortion will sooner or later take place, however small the opening of the os tincæ may be. In this case the uterus is thrown into complete action, and the extension of the neck of the uterus just spoken of, is the effect of its contractions. There is another mark equally unequivocal; and to which I have already adverted, namely, the cessation of morning sickness; a diminution of the abdominal tumour; and, above all,

* *Maladies des Femmes grosses.*

† Dr. Rigby declares, that women have died of hæmorrhage, without the uterus being much opened; but supposes, in such cases, it may be in a dilatable state. p. 42.

‡ Pasta, Vol. I. p. 34.

the secretion of milk; followed by flaccid breasts. In both these cases, all attempts to save the ovum, will be unavailing; and our whole care, must be directed to the state of the flooding.

1018. Nor is the quantity of blood expended, any positive evidence that abortion will take place; especially, when unaccompanied by pain—for I have repeatedly seen a very large waste, without any other evil attending; while, on the contrary, I have witnessed the expulsion of the ovum with the loss of a very few ounces, when attended by pain.* As a general rule, perhaps, it may be said, that those cases of flooding following any violence, more certainly end in abortion, than those which come on silently, and slowly, without any apparent cause.

1019. No reliance should be placed upon the opinion, that a moderate discharge of blood from the vagina, during pregnancy, is useful, by removing topical plethora.† On the contrary, we should look upon every appearance of this kind with great suspicion, and treat it as if it were to become decidedly mischievous. Even the legitimate returns of catamenia, when there is reason to believe the uterus is impregnated, should be treated with caution; since, we cannot satisfy ourselves at first, that it is merely a monthly purgation.‡ In all such cases, when consulted, I have prescribed as if the discharge were of an injurious character; this I believe to be right; since, no evil can result from its adoption; but from a neglect of it, much mischief may ensue.

1020. All cases then, where there is a sanguineous discharge from the vagina of a pregnant woman, should be treated with the utmost care—all the essential indications for hæmorrhage, should be instantly complied with; and no time should be lost by temporising.

1021. The essential indications are, 1st, to arrest the bleeding; 2d, subdue pain if present; and 3d, prevent a recurrence of the hæmorrhage.

* Pain accompanying flooding should not make us abate our endeavours to save the ovum, but under the circumstances stated above: and I have witnessed several instances of ova being cast off, where neither pain nor flooding accompanied the expulsion.

† Kok says, that local plethora is a cause of hæmorrhage. (See Pasta, p. 275.)

‡ See Chapter on this subject.

1022. These three points are constantly to be kept in view, as the preservation of the ovum, or even of the woman, is dependent upon their fulfilment. Therefore, whenever a woman is attacked with an hæmorrhage from the uterus, the sooner it can be arrested, the better; every known remedy of efficacy is to be employed in succession, should the antecedent ones fail of success; and every advantage must be given to these means, by the patient and her attendants, by a strict adherence to the directions enjoined. It would be in vain for the physician to prescribe, if either the patient or attendants run counter to his instructions; and in no case, perhaps, is this observance of more decided consequence, than in the complaint, I am now considering.

1023. One of the first steps to be taken, is to command the most perfect possible rest of body and of mind. The patient should be placed upon a mattress, sacking-bottom, or even the floor, in preference to a feather bed. The room should be well ventilated; the patient very thinly covered; her drinks, toast water, cold balm tea, lemonade, ice-water, &c.—no stimulating substance of any kind should be permitted. Care should be taken, even in the administration of food and of drinks, that the patient be not subjected to exertion to receive them; they should be given to her while in a horizontal position. Her food should also be of the same character with her drinks—thin sago, tapioca, gruel, or panada—in neither of these should wine, or any other liquor, find admission; they can be rendered agreeable by lemon juice, sugar, or nutmeg. All animal food, or the juices of them, in the commencement of flooding, should be forbidden. Let whatever is given, be given cool. Absolute rest of every member of the body should be enjoined.

1024. The officiousness of nurses and of friends very frequently thwarts the best directed measure of the physician, by an overweening desire to make the patient “comfortable.” This consists in changing of clothes, “putting the bed to rights,” or altering her position; all this should be strictly forbidden. Conversation should be prohibited the patient; and all *company* excluded. Much mischief is frequently done by the talk of

bystanders, who delight for the most part in the marvellous; and but too often relate the histories of cases, which are every way calculated to appal the already too much alarmed patient; this kind of gossiping should be peremptorily forbidden, even at the risk of giving offence; rather than permitted to the certain injury of the sick.

1025. Having established a proper system for the repose of the patient, and the government of the attendants, we should next determine the propriety of blood-letting—this becomes very often of high importance; especially, at this division of our subject; plethora is a usual attendant at this time; nay, may be, as I have hinted, the very cause of the alarm. Blood should be taken from the arm in a quantity proportionate to the exigency; remembering, we do little or no good by the operation, if we do not decidedly diminish the force of arterial action; let the pulse rather sink under the finger than otherwise; its repetition must be regulated by circumstances; recollecting, however, that hæmorrhage is sometimes maintained solely by exalted arterial action; as the following case will very clearly show:

1026. I was called to Mrs. B. in January, 1796, whom I found much exhausted by uterine hæmorrhage, in the fourth month of gestation. She had, several days previous to my visit, returns of flooding, which were little attended to. The usual means were now employed, and for the time, the discharge was arrested; this was early in the morning of the 16th. She remained very well until 5 o'clock, P. M. At this time she had a return of flooding; I was instantly sent for; and living but a few steps from the patient, was very quickly at her bed-side. She was found to be flooding very rapidly; the pulse was very active; and the eruption of blood appeared to be preceded by a slight rigor, followed by high arterial action; she was instantly bled from the arm, and the abdomen covered with ice and snow, until there was a reduction in the force and frequency of the pulse; so soon as this took place, there was an abatement of the discharge; this condition was followed by slight alternate pains in the back, shooting towards the pubes. Forty-five drops of laudanum were now given; and strict in-

junctions left, that the patient should be kept as quiet as possible; and in case of return of the flooding, that I should be instantly apprized of it. 17th, A. M. The patient was found free from fever, and almost free from discharge; she continued so until about 5 o'clock, P. M. when the whole scene was renewed, as mentioned before; she was again bled; subjected to the application of the ice; and the laudanum was repeated for the same reasons as yesterday. 18th, A. M. 8 o'clock, I was called suddenly to my patient, as she again had a return of fever, with hæmorrhage; she was again bled, &c.

In this manner did matters proceed for several days; it was found now, that the arterial exacerbations observed no regular period; but whenever they occurred, there was uniformly a return of the flooding, and during this state of excitement only; with a view to interrupt this condition, or to abridge it as much as possible, I placed a young gentleman at the patient's bedside, with orders to bleed, the moment he perceived an increase of pulse; this was accordingly done; and from each bleeding decided advantage was discovered. The loss of five or six ounces of blood was sure to put a stop to the uterine discharge, in the course of a few minutes; and sometimes, would prevent its appearance, when it could be very promptly used. By proceeding in this manner until the 23d, the patient was entirely freed from this distressing complaint. She was bled seventeen times; and lost, by computation, one hundred and ten ounces of blood in the course of seven days. She gradually gathered strength, and was safely delivered at the proper time.

1027. The acetate of lead should now be given in doses, and frequency, proportionate to the violence of the discharge. From two to three grains guarded with opium, may be given every half hour, hour, or less frequently, as circumstances may direct: or in case the stomach be irritable, a very efficient mode of exhibiting it is per anum—twenty or thirty grains may be dissolved in a gill of water, to which will be added a drachm of laudanum: this must be repeated *pro re nata*. If pain attend, more opium should be given than if there were none; and this must be repeated until a decided impression be made

upon the uterine contractions; or until its exhibition appears totally unavailing. Should the discharge be profuse, the application of equal parts of cold vinegar, and spirit of any kind, may be applied to the region of the pubes; or, what is still better, a large bladder, two-thirds filled with ice and water.

1028. The discharge from the vagina, when very profuse, will not always yield, however, to these remedies; and if it do not, it will very soon become highly alarming. To save even a few ounces of blood is always a duty; and sometimes, is highly important: should the means just recommended fail in moderating, or stopping the threatening symptoms, no time should be lost; employ the tampon. The best I have ever used, is a piece of fine sponge, of sufficient size to fill the vagina. It should have pretty sharp vinegar squeezed from it several times, to clean it, as also that it may be imbued with this acid; it may then be introduced into the vagina, and suffered to remain until its object is answered.

1029. Previously, however, to the introduction of the sponge, it will be well to examine the state of the neck of the uterus and os tinæ; their condition will very much govern our decision and prognostics. Should the one be found entirely closed, and the other of its original shape, we may, notwithstanding the profuseness of the discharge, and even the presence of pain, still entertain a rational hope of preserving the ovum; but, on the contrary, if the form of the neck be altered, and the mouth opened, it is pretty certain it will sooner or later be cast off. But neither of these conditions is to affect our conduct as regards the bleeding; for this is to be staunched, though we are certain the embryo will be lost.

1030. Much error is sometimes committed, under the impression, that the ovum *must be* expelled; and that nothing can be done advantageously for the woman until this is effected. I have known a hæmorrhage suffered to continue, almost to the exhaustion of the patient, because pain was considered necessary to the discharge of the ovum; though on each return of it, a large coagulum would be expelled; or the discharge has been augmented, by manual attempts to aid its expulsion. Both of these mistaken methods cannot be too severely repre-

hended—one for blamable supineness; and the other for rash interference.

1031. Whatever may be the rapidity of the discharge in such cases, it is ever under command by the use of the tampon, so far as my experience will warrant the assertion. This should be instantly resorted to; and its effects will be quickly perceived. If the ovum can be preserved, we save a prodigious expenditure of blood: if it cannot, we not only do this, but obtain a most important truce; during which time, nature achieves its separation, and the final expulsion, without the further exhaustion of the patient. For Leroux tells us, that when the uterus is opened, the tampon is not only useful in stopping the discharge, but in stimulating the uterus to successful contraction. (p. 291.)

1032. I deprecate, with much earnestness, frequent, and unnecessary touching. This is not only injurious, by fatiguing the patient, but by removing coagula, that may be important to the stopping of the hæmorrhage. This should, therefore, always be avoided; except at such times as it may become necessary to ascertain whether the mouth of the uterus be yielding to the influence of pain. It therefore can only be necessary in such cases, as are, or have been, accompanied by uterine contractions.

1033. I also must seriously forbid all attempts to remove the ovum, so long as the greater part of its bulk is within the cavity of the womb; lest its covering be broken, and the liquor amnii evacuated. We must let no false theory get the better of multiplied experience; all the latter goes to prove the impropriety of such a procedure: for it is agreed by the most enlightened men upon this subject, that it is mischievous to effect it; and unfortunate, when it spontaneously happens. The reason is obvious. The embryo is expelled, and its involucrem is retained; in consequence of which the flooding is perpetuated, and much pain, and other inconvenience, if not danger, is experienced, before it is expelled from the uterus. I must therefore repeat it to be a rule, that the ovum is never to be pierced before the commencement of the fifth month,* un-

* Burton, and some others, advise the rupturing of the ovum, even at the se-

less the flooding is very profuse, the pains very urgent, and the os uteri pretty well opened.

1034. In this advice I depart from the very high authority of Baudelocque, with whom it is not very safe to differ; he recommends this to be done always after the third month; provided, the membranes do not tear of themselves. But very ample experience has convinced me, that it is safer to preserve them, so long as the os uteri remains closed, be the pains ever so frequent or powerful, or the flooding ever so profuse; for the one may be diminished by opium, and the other arrested by the tampon. And if no pain attend, it almost becomes criminal to do so; since the ovum may, by the use of the tampon and the other remedies above suggested, be preserved.

1035. I have ever found, in such cases, much effort is required to expel the secundines; nor need we be much surprised at this, when we recollect the strong disposition the uterus has to close at this period of utero-gestation. Indeed, I have repeatedly witnessed most alarming floodings from this cause; and am certain, that this arose from the presence of the placenta; as the discharge always ceased, so soon as this mass was removed.

1036. When the hæmorrhage is thus maintained, we should remove the placenta as quickly as possible; but this is the difficulty. At the early periods of pregnancy, which are comprehended within the first five months, the uterine cavity is too small to admit the hand, or a couple of fingers; and sometimes even one; therefore any attempt to deliver it by the hand alone, will almost always fail. If this mass be entirely within the uterus, or even nearly so, the os uteri will be found most generally so much closed, even at the fifth month, as to prevent the introduction of the finger so as to hook down the placenta; and as we descend from this to the second month or lower, it will be naturally so small, as to prevent the intromission of even one.

1037. When this is attempted (by the inexperienced especially,) it is sure to eventuate in disappointment. Sometimes

cond month—than this, nothing can be less conformable to either sound reasoning or good practice.

a portion of the placenta is felt without the *os tincæ*. If its greater bulk be so situated, we can sometimes remove the whole, by pressing it between two fingers and withdrawing it; and thus put a stop to the discharge; but we are rarely so fortunate.

1038. In such cases I have employed, with the most entire success, a small wire crotchet. This instrument is very simple in its construction, as well as in its mode of action.*

1039. The manner of using it is as follows: The fore-finger of the left hand is placed within, or at the edge of the *os tincæ*; with the right we conduct the hooked extremity along this finger until it is within the uterus; it is gently carried up to the fundus, and then slowly drawn downwards, which makes its curved point fix in the placenta; when thus engaged, it is gradually withdrawn, and the placenta with it. The discharge instantly ceases, in every case in which I have used it. In all the instances to which I here refer, I am persuaded the woman's life was saved. In illustration of what I have just urged, I will relate one of the cases of the several that have fallen immediately within my notice. I was called to Mrs. H—— on the 3d of August, 1807; she was at the third month of pregnancy, and violently flooding; pains were frequent and severe; large doses of the acetate of lead and opium were ordered, together with cold applications externally—the mouth of the uterus was a little open, and the ovum protruding; quiet, cold drinks, &c. were ordered before I took my leave. I returned at twelve o'clock, three hours after the first visit—the hæmorrhage not abated; pains increased; the *os tincæ* more dilated, and the ovum more tangible. At three o'clock P. M. the ovum opened spontaneously, and the embryo escaped—flooding violent; pains trisling; syncope frequent; pulse very small and quick; the placenta in part engaged in the *os uteri*—a stimulating injection was ordered, with the hope it would bring away the placenta. Four o'clock P. M.—the injection failed in the

* I have given a drawing of this instrument, upon a reduced scale; the reduction is one-third. I consider this much more simple than the *pince à faux germe* of Levret, recommended by Leroux and Baudelocque; or that of Burton, for the same purpose.



object for which it was given; hæmorrhage continues; syncope frequent; pulse scarcely perceptible. The placenta was now removed by the wire crotchet; the flooding ceased instantly: the subsequent symptoms were very mild.

1040. Sometimes, when the ovum has ruptured, and the embryo escaped, but has left its involucrum behind, the hæmorrhage may not be violent, but may be of long continuance; at least, as long as this mass may remain. In such cases, where time is not so precious to the safety of the woman, I have, in several instances, administered the ergot in twenty grain doses, with very decided and prompt advantage.

1041. The peculiarity of this period consists in the ovum not having the transparent membranes formed; and the practice founded on this, as a general rule, is, never to break the walls of it.

SECT. VI.—*Second Period.*

1042. This comprises all the time from the fourth and a half, or the fifth month, to the entire completion of utero-gestation.

1043. The woman is liable to hæmorrhage during any part of this period, by the action of any of the remote causes already enumerated; and in proportion to the advancement of pregnancy, will be the risk from flooding, as the quantity of blood thrown out in a given time, is, *cæteris paribus*, greater and more difficult to arrest. Therefore, when a woman is attacked with a discharge of this kind, however moderate it may be in the commencement, we have no kind of security against its increase, at any after moment—she is to be carefully watched, and most fully advised. I should insist upon her compliance with the rules directed for the first period; and employ the remedies already proposed, as early as the nature of the case may require.

1044. I have already intimated, that an hæmorrhage from the uterus during pregnancy, can only happen from a portion of the placenta being detached. It will follow, that the issue of blood will be in proportion to the extent of surface so exposed; to the advancement of pregnancy; and the force of the circulation. Now, as the advancement of pregnancy is greater

in this, our second division, than in the first, the chances for a more profuse discharge of blood are increased, in an equal proportion; hence, it is agreed upon all hands, that the risk the woman runs is very great; so great, indeed, sometimes, as to be very speedily fatal; since, we can have no influence over the extent of separation of the placenta, nor always have control over the force of arterial action.

1045. The indications, however, are precisely the same as for the "first period;" but their fulfilment is not always effected after the same manner. Practitioners are by no means agreed as to the precise mode of arresting the hæmorrhage, though they all agree as to the necessity of the most prompt and decided application of remedies, for this purpose—they may, therefore, be divided into three classes: the first, relies upon the exhibition of internal remedies, and external applications; the second depends upon the administration of medicine, and the use of the tampon; while the third insists, there is no safety but in immediate delivery.

1046. For each of these modes, high authority could be cited; and the young practitioner, pursuing his inquiries into this subject, becomes perplexed by discrepancy—he hesitates between the different plans, and thus incurs a loss of valuable time, or he adopts one the least suited to the case. With a hope, therefore, to lessen this embarrassment as much as experience will warrant, I shall, as briefly as possible, weigh the merits of each of these plans.

1047. Those who recommend the first plan, seem to do it upon the principle, that as great and as certain a mischief will arise from the employment of either of the two other methods, as can result from the hæmorrhage; hence, they condemn the tampon, and deprecate delivery: but in doing this, it is evident they have taken but a very superficial view of the subject, or have been too much governed by prejudice.

1048. That both these methods can, and have been abused, must be admitted; but that they are as mischievous, when properly and seasonably employed, as an unrestrained flooding, I cannot by any means agree—but more of this presently. The practice of the first class must, by every man of experience,

be admitted to be both feeble and uncertain; nor can it ever be recommended exclusively, in any threatening case.

1049. In moderate uterine discharges, alum, the preparations of lead, digitalis, and the external application of cold, together with astringent injections per vaginam, &c., may very often succeed; and hence it is my uniform practice, in cases of this kind, to exhibit the acetate of lead, either by the mouth, or if the stomach be disturbed, per anum; in a word, treating them in every respect like the mild ones, of our "first period."

1050. But what reliance can be placed upon these comparatively feeble remedies, in hæmorrhages which threaten the life of the patient in a very short time—cases where the woman has been drained of by far the larger portion of her blood; where there is syncope, convulsions, or an extinguished pulse? Can any man reconcile it to his conscience to stand by, waiting the success of a few grains of alum, or of sugar of lead, or of a few drops of the tincture of foxglove, while the woman's life is rapidly passing away with the escaping blood? In such cases success can only attend one or both of the other methods; and to these must be directed the attention of the young practitioner, in every case of a menacing appearance. Yet we are told of success attending the other, even in some desperate instances.

1051. Of the effects of alum in severe cases, I can say nothing from experience; but from what I have witnessed in those of a milder kind, I should not be tempted to place upon it much reliance;—if given in small doses, it is insufficient for the end; and when given in larger quantities, it almost always deranges the stomach so much, as to be rejected; of digitalis, I can say nothing in any case.

1052. But as this remedy is recommended by Mr. Burns,* for floodings accompanied with increased arterial action, it may deserve confidence; but I should not be much tempted to employ it; not from its want of power over the circulating system, but from its general unmanageableness, and the permanency of that depression which it sometimes occasions.

1053. Of the sugar of lead I have a much higher opinion.

* *Principles of Midwifery*, p. 289.

This has been considered by some as a new remedy; but I find it was long since recommended by Etmuller, Friend, Kok, &c.—the two former in the form of the tinct. antiphthisic., and the latter in injections, combined with vinegar, per vaginam. Its effects are for the most part prompt, and useful; and it should be regarded as an important auxiliary. I have given it liberally, and often with the most decided advantage—and very constantly employ it, in addition to other means. It can be given by the mouth in the quantity already mentioned; or by injection, as before suggested.

1054. I never, in cases of this kind, place any reliance upon injections into the vagina; and for these several reasons: 1st, because they are very inconvenient in their exhibition; and especially as they must necessarily be rejected very quickly, and thus add to the discomfiture of the patient, by wetting, or rather floating her; 2d, because their effects are both uncertain and transient; 3d, because they may prove injurious by disturbing the patient, or by the removal of a useful coagulum. After delivery, I have sometimes thought them useful; but never to the extent, we are led to suppose by some.

1055. It is my uniform practice, in every case of flooding during pregnancy, of a threatening aspect; or when from the rapidity of the discharge, the woman's strength would quickly be exhausted, to use, in addition to the means just mentioned, the tampon. I have already said I have found fine sponge the best; but where this cannot be procured, fine flax, or very well picked tow, or old linen, may be substituted.

1056. When the latter substances are chosen, they should be used in portions of moderate size, and well moistened with sweet oil, or melted lard—they should be introduced one by one, until the vagina is completely filled; the whole may be secured by a compress, and T bandage. This latter precaution is not necessary when a sponge is used, if the piece be of proper size. From its compressibility, it is introduced without the least inconvenience, if previously wetted with vinegar; and I believe it promotes coagulation quicker than any other substance, from its numerous cells giving speedy passage to the finer parts of the blood. It almost instantly puts a stop to the

hæmorrhage; and in some instances, I believe I was entirely indebted to it, for the preservation of my patients' lives.

1057. As this remedy is so confidently recommended, it may be well, as it will appear a novel one to many, to say something more upon the subject; and endeavour to obviate the objections which have been urged against it by several respectable practitioners. The tampon is by no means a remedy of modern invention. It may be traced, as we are informed by Pasta, in several of the ancient authors;* but Hoffman gave the first clear account of it; and it was used many years ago, by Smellie. Leroux, however, is its great defender. He has given us many cases, in which its effects were very decidedly useful, and where it would seem, in all probability, that death would have been the inevitable consequence had it been omitted.

1058. It is truly a matter of surprise, nor am I able upon any conjecture to account for its not being considered by the British writers, as a remedy in uterine hæmorrhage, from the time of Smellie to that of Burns. It is true, it is mentioned by Dr. Denman; but he evidently places no reliance upon it; nor does Rigby lay the smallest stress upon its efficacy; he merely says, "that should a case occur in which the uterus is too small to admit the hand, and yet the discharge so considerable as to endanger the life of the patient, before nature, by her own efforts, seems likely to effect an abortion, the method recommended by Leroux might, *I think*, with propriety be adopted."† Dr. Merriman merely mentions it en passant; and says he has "had reason more than once to think it had been prejudicial,"‡ but he mentions its employment only in hæmorrhages succeeding the expulsion of the placenta. But Mr. Burns makes honourable mention of it, and seems to place upon it no inconsiderable dependence. Since the publication of his work upon midwifery, others have regarded it as valuable in arresting flooding; so that at this time it appears to have awakened more attention than formerly.

* Pasta (Vol. I. p. 277) says, it was employed by Hippocrates, Moschian, Egineta, &c.

† Treatise, p. 62.

‡ Synopsis, James's ed. p. 178

1059. The objections which have been urged against the tampon are : 1st. The danger of local inflammation from the use of the vinegar.

1060. To this it may be answered, that even were vinegar attended with this effect, it would be no objection to the tampon, since it would be easy to omit its employment—but I have never in a single instance witnessed any such mischief, nor is there the smallest probability of such a consequence.

1061. 2dly. Making a dyke for the effluent blood, it may convert an open hæmorrhage into a concealed one. This I can declare, with much confidence, cannot happen in the cases comprehended in the two first divisions of our subject; since, the uterus at both these periods is occupied by the fœtus, and the vagina by the tampon—it is evident, therefore, that no more blood can accumulate than will fill the interstices in the vagina, or the room made by the blood raising the uterus higher in the pelvis: the first of these must be few, if the vagina be properly filled by the sponge, or any other substance used as a tampon: and the second must be very limited, since we know this mechanical effect must quickly be at its maximum—for the uterus, when thus loaded, cannot be made to ascend very high into the abdomen; consequently, much blood cannot be expended.

1062. 3dly. Coagula may become putrid, and thus do mischief by their decomposition.

1063. This objection is of less weight, than either of the two just examined; since, it is by no means necessary to continue the tampon so long in the vagina, as to run any risk from putrefaction; twelve or fourteen hours, being the longest periods necessary for its presence; at the expiration of this time, Leroux and others advise its removal, and in this I concur.

1064. 4thly. It may occasion a rupture of vessels, agreeably to Van Swieten, by stretching the ovum from the sides of the uterus.

1065. This cannot happen but in those cases where the os uteri is pretty well dilated; and even in these, such effect is very problematical—but in the latter case, were it even true, no evil could result, since the fœtus, under such circumstances.

must sooner or later be cast off, as the uterus would be certainly thrown into action—I shall presently say, I regard this remedy, as of high utility in cases of this kind.

1066. 5thly. According to Kok, it will always be followed by the expulsion of the fœtus, as it always provokes uterine contraction.

1067. We need not be much surprised at this assertion of Kok, since he supposes the orifice of the uterus is also to be plugged; now, as I never consider this necessary, I do not consider this objection of much force.*

1068. But though Kok thinks expulsion will follow the use of the tampon, he still bears honourable testimony to its efficacy in arresting hæmorrhage, in threatening cases; he says, “le procédé (namely the tampon) est infiniment préférable à ceux de Mauriceaux, et de Puzos;” (that is, rupturing the membranes) “il n’augmente jamais l’hémorrhagie, il la ralentit et l’arrête souvent.”†

1069. The mode of action of the tampon in stopping hæmorrhage, is precisely the one nature employs, when she alone effects this end. A coagulum is formed from the tampon to the mouths of the bleeding vessels, and thus puts a stop to, or very much diminishes, the farther issue of blood. It would seem, from all we know upon this subject, that there is a strong disposition in the cut or divided extremity of a blood-vessel when at rest, or nearly at rest, to form a coagulum within itself for the purpose of putting an end to the farther issue of blood: hence the importance of coagula at the mouths of the bleeding arteries; the formation of which, is the first step towards spontaneous suppression. Puzos† many years since, had pretty nearly the same notion upon this subject; he said that the coagula acted as corks to the mouths of the bleeding vessels.

* Pasta, p. 279. † Ibid. p. 277.

‡ “Ces sages precautions ont suspendu souvent, et quelquefois ont fait cesser des pertes de sang accompagnées de petits caillots; non pas en soudant, pour ainsi dire, à l’intérieur de la matrice les portions du placenta séparées, mais en donnant le temps au sang arrêté à l’embouchure des vaisseaux de s’y cuilleroter, et d’y former de petits bouchons moulés sur leur diamètre, capables d’arrêter le sang.” (Mem. de l’Acad. tom. I. p. 211.)

1070. It has been supposed by several, that after the suppression of an uterine hæmorrhage, arising from a separation of a portion of the placenta, a re-union takes place between the separated parts; I do not believe this; as the connecting medium between the uterus and placenta must necessarily be destroyed, or so much injured, as to render it improbable it can ever serve the same purpose again after the same manner—the vessels are certainly ruptured by the separation; or their extremities so exposed, that there is scarcely a possibility they can be again united, and serve as a bond of union between these two parts. Nor is it more probable that a union would be effected by the effusion of coagulating lymph, after the manner that union is performed in other portions of the body; since, this most likely would be mischievous by its firmness. Did a union take place under such circumstances, a woman would run the risk of an adherent placenta—besides, I have repeatedly been able to detect the separated portion after the expulsion of this body, in cases which had been preceded some time before by flooding; this betrayed itself, by being very much darker than the other parts of the placenta, and being covered by a very fine layer of coagulated blood.

1071. The internal remedies for the suppression of uterine hæmorrhage, when successfully employed, must act in such a manner as to dispose the blood to a more speedy coagulation, or immediately upon the opened extremities of the bleeding vessels, so as to induce a contraction of them. Hence the almost universal employment of that class of medicines called astringents. Leroux,* however, forbids them in uterine hæmorrhage after delivery; but he does this upon a wrong principle; he says, “dans l’hémorrhagie utérine violente qui succède à l’accouchement, ils ne peuvent être d’aucune utilité. Pour s’en convaincre, il suffit de se représenter la route qu’ils sont obligés de suivre avant de parvenir au lieu où leur effet pourrait être utile, le temps qu’ils mettent à parcourir ce trajet, et les changemens qu’ils éprouvent avant d’y arriver.”

1072. In like manner, from their mode of action, Leake† ob-

* Observations, &c. p. 200.

† On Child-Bed Fever, Vol. II. p. 301.

jects to the use of astringents or styptics in this complaint; and, as I conceive, upon no better ground than Leroux; for I know that certain of them, and the sugar of lead especially, sometimes produces the most decided effects, let its mode of action be what it may.

1073. In many instances, it seems to exert a control over the bleeding vessels, as prompt as the ergot does upon the uterine fibre; and, from the extent and certainty of this action, we might be tempted, without doing much violence to the delicacy of medical speculation, to call its action specific. In a word, we may justly question, whether any internal remedy can be successful in uterine hæmorrhage, which does not exert an action somewhat specific.

1074. But neither internal remedies, nor external applications, should be exclusively relied upon, longer than is decidedly consistent with the safety of the patient; for neither astringents of any kind, nor the tampon, can be availing in all cases; and when they fail, there is but one resource, namely, delivery; the consideration of which, brings us to the mode employed by the third class of practitioners, for stopping uterine hæmorrhage.

SECT. VII.—*Delivery considered as a Mode of arresting Hæmorrhage.*

1075. From the time of Mauriceau and Dionis, to the present moment, the number belonging to this class is very considerable; and if numbers merely were to be considered, the weight of evidence would be in favour of their practice. The want of proper knowledge in treating uterine hæmorrhage by other means; the fatal rapidity of its termination, sometimes, where rupturing of the membranes, or delivery, was not performed; or where a feeble plan had been pursued; the occasional success of these plans, together with the strong probability of uterine contraction after this organ is emptied, and the influence of this contraction in arresting the bleeding; has but too easily, and too generally, found advocates for its almost exclusive employment. Thus La Motte* thought it impossible

* *Traite des Accouchemens, Obs. 216.*

to restrain hæmorrhage when the placenta was detached in part or entirely, but by the extraction of this mass; Dionis declared we should not defer the delivery of the fœtus, if blood in great quantity, and without interruption, escaped from the uterus.* Mesnard advised delivery, if there was a flooding sufficient to cause fainting;† and Heister‡ and Puzos§ were of the same opinion, &c. &c.; for it would be easy to multiply authorities, to considerable extent, to the same end.

1076. The advocates for delivery as the only means of arresting hæmorrhage, may be divided into two classes; first, into those who paid no regard to the condition of the uterus when the operation was undertaken. The second, those who evacuated the liquor amnii, with a view to promote the contraction of the uterus, and by this means put a stop to the flooding; these last may be subdivided into three: 1st. Those who did not regard the situation of the os tincæ when they ruptured the membranes; but when this did not immediately succeed, by forced means entered the uterus with the hand, and immediately effected the delivery. 2d. Those who, having torn the membranes and gained the feet, were contented to bring them to the orifice of the uterus, and then trust to the natural efforts to perform the delivery. 3d. Those who never pierce the membranes, but when the mouth of the uterus is either dilated or dilatable, and who, after rupturing them, permit them to escape gradually, and finish the delivery very slowly, or wait for the efforts of nature.

1077. From the improvements which midwifery has received within the last fifty years, I should not have expected to meet with an advocate for indiscriminate delivery, at the present day; yet in Meygrier, we find that advocate. That the most mischievous consequences have followed the practice of those who compose the first class,|| we have the authority of Pasta,¶

* Des Operations, p. 249.

† Pasta, p. 170.

‡ Surgery, Part II. p. 957.

§ Mem. de l'Acad. Vol. I. p. 224.

|| Among the first class may be reckoned all the accoucheurs prior to the time of Mauriceau. To the second class, and the first division of that class, belong Mauriceau, Dionis, La Motte, Deventer, &c. &c. To the second division we may place Puzos, Smellie, Delourie, &c. &c. And to the third, we have Leroux, and most of the late writers upon midwifery.

¶ Vol. I. p. 132.

who deprecates the practice as both cruel and dangerous; of Kok,* who says he has seen it followed by inflammation of the womb; of Leroux,† who declares it to be dangerous to both mother and child; of Baudelocque,‡ who insists that nothing can justify the accoucheur who persists to deliver while the neck of the uterus retains its natural thickness and firmness. And I once witnessed death, as the consequence of such a proceeding.

1078. The method pursued by those of the first division of the second class, is not free from serious inconveniences; and they are, perhaps, scarcely inferior to the first, as the same violence almost is obliged to be committed. The plan of the second division of the second class, (which I shall, in conformity with custom, call Puzos' method,) is far from being the one most conformable to the principles of the art; since in its performance, *great* violence is frequently obliged to be resorted to.

1079. The objections to this scheme are: 1st, that every flooding during pregnancy is not necessarily followed by delivery; but if we adopt this method, it must sooner or later take place, perhaps to the certain destruction of the fœtus.

1080. 2d. Because the mouth of the uterus may be so placed as to render this operation very difficult, if not impossible; especially, when the uterine orifice is still very thick and rigid; for Puzos§ himself confesses, he was an hour or more before he could pierce the membranes; and this was a loss of most precious time to the patient, as the flooding still went on, and he began to despair of the success of his method from the excessive loss of blood, and was fearful he should be obliged to have recourse to forced delivery.

1081. 3d. That the hæmorrhage does not always cease after the rupture of the membranes; but on the contrary, it sometimes only manifests itself at that time.

1082. 4th. That the presentation of the child, and the presence of the placenta over the mouth of the uterus, will render this method ineligible.

* Pasta, p. 276. † P. 241.

‡ Vol. II. p. 90.

§ Mem. sur les Pertes, &c. p. 336.

1083. 5th. It is sometimes impossible to make a forced delivery; especially, from the fifth to the sixth and half month; of this La Motte* gives an example, and Smellie† another—and I once saw a similar failure. And, above all, they have not pointed out any alternative when their plan shall have failed.

1084. It is only upon the method of those who compose the third division of the second class; or those, who never pierce the membranes, but when the os uteri is dilated or dilatable, that we can safely place reliance, in cases of severe flooding.

1085. It may be asked, what are we to do in cases of profuse hemorrhage, at any period from the fifth month to the full time, when the discharge threatens the life of the patient, and when the os uteri is both close and rigid? Are we silently to witness her death, rather than employ some violence to relieve her? Certainly not. If there really was no other remedy, forced delivery, with all its disastrous consequences, might be justifiable; but as we have the power of plugging the vagina, and preventing the farther issue of blood, we should have immediate recourse to it: and this plan, so far as I have witnessed, has not failed; and this experience is so supported by that of Leroux, as to entitle it to confidence. By this means, time is permitted to the natural agents of delivery for the performance of their duties; and this is done, for the most part, with both certainty and success.

1086. The importance of the tampon is, perhaps, never so clearly demonstrated, as when it is employed in cases where the flooding has proceeded to almost complete exhaustion—where every ounce of blood is of immense value. In such cases (before delivery) I have seen it arrest a profuse flow in almost a moment, and where the farther loss of a few ounces, must have been followed by death. Syncope, and even convulsions, have ceased upon its application.

1087. There is no greater error in obstetric practice, than the opinion that fainting is a desirable event. That it has been useful quo usque ad hoc, must be confessed; but who in his

* Obs. 452.

† Collect. 33, No. 2, Ob. 1.

senses would wait for this as a remedy in uterine hæmorrhage; since, it can only occur from the extreme weakness of the patient? Who would wait for this forlorn effort of nature, when he could command a tampon? If the practitioner were absent during an exhausting profluvium, and learned, before he could exert his skill, that the patient had fainted, he might suppose it to be useful, *pro tempore*; but he should never look upon it, but as a *dernier* remedy.

1088. Dr. Denman's opinion upon this subject, is certainly calculated to do mischief. It makes a young practitioner indifferent to the quantity of blood that is wasting, because a state of faint has not come on—and when this condition does come on, he hails it as a most friendly visitation—forgetting, that fainting is a decided proof of extreme exhaustion; and that his patient may never recover from it. Dr. Denman emphatically calls it “a remedy provided by nature for averting the immediate danger of all hæmorrhages, and to prevent their return.” Who, with this belief, would not rather invite fainting, than avoid it? But let us not be deceived by terms.

1089. That a state of syncope favours, or promotes coagulation, is agreeable to all observation; but whether this arises from an inscrutable law of the animal economy, and for purposes entirely out of view, or instituted for the end assigned by Dr. Denman, may admit of much doubt. For, were it for this latter purpose, it would be much more advantageous to the individual to have it answered at a less expense; or at a more suitable period—for, on such occasions, it would be much better to imitate nature in the end, than in the means; and this is what is constantly aimed at, when we use lead, *digitalis*, the tampon, &c.

1090. Again, I cannot agree with Dr. Denman, in his prescription of “cordials or stimulants,” in the state of extreme exhaustion to which women are sometimes reduced by floodings; I think I am as certain of the propriety of this practice as of any practice whatever; and have employed it when the pulse was very much reduced, or extinct, the extremities cold, the breathing hurried and short, vision imperfect, and voice almost inaudible, with the most decided advantage. It is true, I ad-

minister them with caution, but with steadiness; and in such quantities as shall neither offend the stomach, nor invite too much re-action. In this I persist, until there is evidence that the system will re-act—so soon as this appears, I desist from all stimuli, until a fresh necessity is created.

1091. There is another position of Dr. Denman's, arising from his particular views upon this subject, which, to say the least of it, wants confirmation—namely, that “during faintness, the advantage arising from the contraction of the uterus, is likewise obtained.” I have no hesitation in saying, I have repeatedly seen the contrary happen—I will illustrate this from one of several examples. Mrs. B—— was delivered, after rather a tedious, though pretty severe labour; the placenta was in due time spontaneously expelled, and the uterus well contracted. About half an hour after I had taken my leave, I was very suddenly summoned to Mrs. B.'s bed-side, as she was extremely faint, and had lost considerable blood. I immediately commenced brisk frictions with the hand upon the abdomen; and continued them until the uterus was felt firm under it—the discharge immediately ceased—in a few minutes after, Mrs. B. told me she was again very faint; at the same moment the uterus was found to become flaccid under the hand, and again there was a return of discharge—the friction was continued until the uterus was made to pucker itself up; the faintness went off, and every thing promised well, until another attack of syncope again relaxed the womb; and another gush of blood instantly followed; in this way did the faintness and relaxation of the womb follow each other, for eight or ten times; but a perseverance in the frictions, and the exhibition of some wine and water, eventually overcame the disposition to faint, and there was no farther return of the relaxation, or of the flooding.

1092. Now, in this case, the state of faintness was constantly followed by a relaxation of the uterus, so that when syncope arrests hæmorrhage, it must be more by the formation of coagula, than by effecting the contraction of the uterus.

1093. And though it is strictly true, as Dr. Denman asserts, that the uterus “acts, or makes its efforts to act, in sleep,” and

according to him and others,* “sometimes even after death,” yet it does not prove that a state of faintness is favourable to this end. Indeed, in many instances the uterus appears so independent of any condition of the other parts of the body, that it may be said, with much propriety, to be governed by laws and conditions of its own, and over which, other portions of the system do not seem to exert the smallest control. Who has not seen an alarming flooding from the inertia of this viscus, in a woman whose physical strength has been almost in excess? And, on the contrary, witnessed its firm and secure contraction, where every other power almost has been exhausted by previous disease?

1094. As it is confessed, that after the failure of the remedies recommended for the suppression of hæmorrhage, the application of the tampon, &c. there is but one means left in our possession by which the flooding can be arrested, and the life of the woman preserved—yet it may be asked, is there no condition of the patient in which it would be improper to attempt delivery, besides the rigidity of the os uteri? To this, I answer, yes—I would say, that a woman reduced to the last extremity of weakness, but with a suspension of the discharge, should not be meddled with, so long as the hæmorrhage was kept in check.

1095. But suppose the same degree of weakness, with a continuance of the flooding; should we in such case attempt delivery? I have no hesitation in answering this in the affirmative—but, previously to the operation, the condition of the patient should be candidly stated to her friends; it should be undisguisedly declared, that no undue calculation should be made of the benefit of delivery; but, as it offers the only possible chance of relief, it should be adopted. We should be the farther encouraged to do this, as it now and then happens that the woman has recovered, contrary to all expectation.

1096. Hitherto, I have said nothing of opium as a remedy in uterine hæmorrhage; the reason is simply this—it has never in my hands merited the smallest commendation; for it has

* Baudelocque, Leroux, Kok, &c.

never been attended with the slightest success; of course, I cannot be of opinion it deserves the encomiums which have been so freely bestowed upon it by Dr. Hamilton and others. I have read dispassionately, and with care, Dr. Stewart's book upon this subject; and have cautiously examined the cases detailed there; but they have not afforded me the slightest grounds to believe that the opium had any agency in arresting the floodings, for which it had been so liberally administered—the cessation uniformly appeared to be the result of the natural powers of the system in general, and of the uterus in particular. That it is highly beneficial, at all periods previous to delivery, in allaying pain, and in this way putting a stop to farther mischief, I most freely confess—but I cannot yield any thing more. I am not alone in this respect; Dr. Denman seemed to entertain a similar opinion; and Barlow has advanced the like sentiments.

1097. It may be proper to say a few words upon the subject of cold applications; as no remedy has been more extensively employed, or more certainly abused. Cold, as a means to arrest flooding, is in almost universal employment; is usually one of the first resorted to, and the last that is abandoned—it has acquired so much popularity among the vulgar, as to render its omission, in the treatment of this complaint, unsafe to the reputation of the practitioner.

1098. Though confessedly an agent of great power, it has nevertheless its limit of usefulness; and beyond this limit, it should never be urged—its efficacy is entirely confined to its influence on the circulating system; by diminishing its vigour, and abating its velocity. When these ends are answered, it is truly doubtful, whether it should be farther persevered in; at least, its value is much diminished.

1099. I employ it very liberally; and sometimes, if the case be urgent, at a very low temperature—in general, the best mode of applying it is by a large bladder, as has already been directed—(1027) but in very sudden and alarming cases, I have found teeming it from a height upon the abdomen, to be decidedly better, owing to the promptness and extent of its effects.

1100. But if the pulse flag, and the woman is much exhausted, I not only forbid it, but have a warm blanket, or other articles, to supply its place. During the use of cold water, &c. to the abdomen, I order warm applications to be made to the feet and legs; a bottle or jug of warm water well corked, is one of the best, and handiest—this last direction I am particular not to omit, should the feet and legs be preternaturally cold. We also should be particularly careful not to wet the bed and clothes of the patient, if it can be possibly avoided; as it creates much inconvenience, without doing the least good—it will render the poor woman's situation extremely unpleasant, besides obliging her to be disturbed, that dry things may be substituted.

1101. The injecting of cold water, cold alum-water, the solution of the acetate of lead, the introduction of ice into the vagina, and even into the uterus, &c. have all been practised; and, it is said, with advantage. The merits of such applications must rest upon the authority of those who recommend them; for I confess I have no experience in either of them; nor should I be tempted to rely upon them in very pressing cases.

1102. It may be proper to observe, in addition to the remedies and modes of proceeding pointed out in this division of our subject, that, in certain cases of uterine hæmorrhage, the forceps are the only means to be employed or relied upon. They are exclusively indicated, 1st. Where the discharge is threatening, and the labour well advanced; but where the membranes have been long ruptured, and the uterus is firmly embracing the body of the child, or the head does not advance with sufficient rapidity to afford security. 2dly. Where the head is low in the pelvis, and has escaped from the orifice of the uterus—in this case, turning must not be thought of, however recent may have been the escape of the waters; or however moveable the head may be in the pelvis. 3dly. Where the uterine efforts are either feeble, or suspended; and where the os uteri is sufficiently distended, but where the waters have been long discharged. 4thly. Where the head occupies the inferior strait; the orifice of the uterus sufficiently expanded;

the waters either recently or a long time expended ; but where, the natural agents of delivery, would act too slowly for the safety of the patient. 5thly. Where the natural powers are incompetent to the sufficiently speedy delivery of the patient ; owing, either to the *mal*-position of the head, or to such a disparity between it and the pelvis, as shall prevent its timely expulsion.

SECT. VIII.—*Hæmorrhage from the Situation of the Placenta.*

1103. I must now speak of that hæmorrhage which is so appropriately termed the “unavoidable,”* and which, as I have already declared, arises from the peculiar location of the placenta. The first evidence of the placenta being over the mouth of the uterus, may declare itself so early as between the sixth and seventh months of utero-gestation. At this time, the neck of the uterus begins to be stretched for the more complete accommodation of the fœtus—in consequence of which, a small portion of the placenta will be separated from the uterus ; this of course will be followed by a discharge of blood, commensurate with the extent of the lesion, and the size of the vessels involved in this separation.

1104. This discharge may, by proper management, be made to cease ; nor will it return until the uterus and placenta are again forced to separate—then, another slight hæmorrhage ensues, which may also cease ; and not be renewed perhaps until the last period of pregnancy ; or there may be, as happens sometimes, a constant stillicidium of a bloody sanies. Dr. Rigby, who is considered the highest authority upon this subject, seems not to have bestowed as much attention to the condition of the patient before the full period of utero-gestation, as he

* We are indebted to Dr. Rigby, for this term being in general use—he has written a valuable treatise upon this subject ; though anticipated by Levret, in the discovery that the placenta might be originally fixed upon the os uteri. But it would appear, it was an original suggestion with him, as well as with Levret ; for he assures us, at the time he promulgated this doctrine (and no one will doubt Dr. Rigby’s word,) he had never seen that author’s work ; and that his “ideas upon this subject were derived from his own personal observations, and experience.” (*Essay on Uterine Hæmorrhage*, p. 13.)

did to the consequences when that time arrived, or he would not have held the doubtful language he did when speaking of the "time and manner" in which the "accidental" and unavoidable hæmorrhage came on; he says, "*probably* that which is occasioned by the placenta being fixed to the os uteri, will, for the most part, not come on till the full term of parturition, when the uterus begins to dilate from the approach of labour;" which is contrary to the history I have just given, as well as to the experience of almost all the writers* upon this subject. Besides, the very economy of the uterus makes my account correct.

1105. Therefore, when the full time arrives, the woman may be surprised by a sudden, and an alarming issue of blood, without the smallest premonition—for it sometimes makes its approach so rapidly, and so insidiously, that the patient may be attacked in the midst of her domestic duties, or while in the enjoyment of company. At other times, it is preceded by slight and distant pains;† and when this is the case, the discharge, for the most part, is neither so sudden, nor so alarmingly extensive; for hæmorrhage is never so overwhelming nor appalling, as when the os uteri silently and rapidly yields, and in an instant exposes a thousand bleeding vessels.‡

1106. The blood flows in an almost unceasing stream, till the woman becomes much weakened and faint; coagula may

* See Leroux, Kok, Baudelocque, Denman, Burns, &c.

† When this species of flooding is accompanied by pain, it will in general be found, that the waste is neither so sudden nor so profuse, as when none attends; though each contraction of the uterus augments, for the time being, the hæmorrhage. It must, however, be observed, that in proportion to the discharge, will be (*cæteris paribus*) the diminution of uterine force—and hence the infrequency of natural deliveries, in this kind of flooding. Indeed the pains seem almost to cease; or, in other words, the contractions yield almost as soon as they commence; for a certain fulness of blood in the uterine vessels, seems essential to healthful contraction.

‡ This circumstance, however, rarely obtains, but where the woman has arrived at, or very near, her full term, and where she has been teased by some previous discharge. May not the pretty constant, though inconsiderable discharge just noticed, contribute to this sudden dilatation of the os uteri, by acting as a uniform local depletion?

then form, and a temporary truce ensue; but this in general is treacherous, and of short duration; especially, if pains attend; for the coagula which had partially arrested the hæmorrhage are now driven away by the contractions of the uterus, or by the operation of some other cause, as accidental as unavoidable, and the discharge is renewed with perhaps even increased violence; and in this way do things proceed, until the poor sufferer is either exhausted by the waste of blood, or relieved by the judicious and successful interposition of art.

1107. When the discharge is so extensive and sudden as I have just described, no time should be lost before it be ascertained whether the flooding proceeds from a separation of a portion of the placenta remotely situated from the os uteri, or from this mass being placed over it—the symptoms which designate these different situations, though perhaps pretty strongly marked, are not sufficiently accurate to render a more certain and decided examination unnecessary.

1108. We should, therefore, upon such occasions, always examine the mouth of the uterus with great care. In conducting this, the finger, merely introduced into the vagina, will rarely inform us with sufficient accuracy, to prevent all error; the hand should be conducted into this canal, that the utmost freedom may be given to this important examination. A proper moment, however, should be chosen for this purpose, that no evil may result from the operation; for I have just remarked, that a suspension of the discharge is sometimes effected by a coagulum within the vagina or mouth of the uterus, which being removed in making the examination, may renew the flooding, to the decided injury of the patient; while the blood is flowing, is the time to make this attempt.

1109. When the hand has possession of the vagina, a finger should be carried within the os uteri; it should then carefully and with certainty, determine the nature of the substance presented to it: if it be the placenta, it can be easily distinguished from a coagulum (the only thing to which it has any resemblance) by the following characters: 1st. The placenta always presents a fibrous structure, of pretty considerable firmness. 2d. When this is pressed upon by the extremity of the finger,

a sensation of tearing an organized mass is excited. 3d. It being much firmer in its consistence, and offering more resistance to the play of the finger within it, than a coagulum. 4th. Its not escaping from the finger, when its substance is in some measure broken down by the pressure and free movement of it—it can never be mistaken for the membranes.

1110. In a case of such importance, we should neither permit a false humanity, nor a false delicacy, to get the better of an imperious duty; for upon the early knowledge of the species of flooding, the woman's life may unquestionably depend. We should therefore, without reserve, state to the friends of the patient, our opinion of the nature and tendency of her case, and the importance of ascertaining it, by a proper examination. This will almost always be acquiesced in; and, if it be properly conducted, will neither excite any severity of pain, nor wound the most fastidious delicacy. The hand for the most part, from the relaxation consequent upon a continued discharge, will pass without much difficulty; or it may be made to do so, by proper lubrication.

1111. It is true, indeed, with a first child, and at an incomplete period of utero-gestation, there may be some difficulty in passing the hand, if the discharge have not been pretty abundant—but in this case, the examination is not so immediately important; should it, however, be so, from the excess of the hæmorrhage, the parts will then be found almost always sufficiently yielding to permit the passage of the hand without great difficulty.

1112. Having ascertained it to be a placental presentation, the condition of the mouth of the uterus should next be carefully examined—the degree of opening, and its disposition or indisposition to dilate, should be marked; for on this much depends. It will be found in one of the following situations: 1st, but little opened, and very rigid; 2d, but little opened, yet disposed to dilate; 3d, opened to some extent, but very unyielding; 4th, opened to the same extent, but soft; 5th, fully dilated.

1113. The nature of the case being thus ascertained, the mode of treatment is next to be considered. This will neces-

sarily be much influenced by the particular condition of the woman, and the period at which the discharge may show itself, and its quantity make interference necessary. I have already noticed, that when the placenta is situated over the mouth of the uterus, slight discharges of blood may take place after the sixth month, as a consequence of the economy of the uterus (1103) at this period: when these are moderate, they may, for the most part, be arrested by the means usually employed for flooding, when the placenta is not placed over the mouth of the uterus; they should therefore be put into immediate requisition, and the patient placed under the strictest injunctions of obedience, and conformity to directions.

1114. For a discharge of blood at this period is always to be looked upon as liable to extreme augmentation; and we should never lose the suspicion, that it may arise from the situation of the placenta. We have no certain means, by which the "accidental" may at this time be distinguished from the "unavoidable," unless it be by a careful examination—but this is never necessary, so long as the flooding is moderate. I think, however, I have observed in the "unavoidable," that the flow of blood is more sudden and copious, in a given time; and that it is more fluid and florid, than in the "accidental." In the commencement, the "unavoidable" is never accompanied by coagula; and when pain attends, the discharge is always increased at each contraction. But in cases demanding precision, these marks cannot be relied upon. From the proximity of the bleeding vessels to the os externum, the blood will issue so quickly from them, as to appear both more fluid, and more florid, than in the "accidental" species; for in the "accidental," the blood may escape remote from the os uteri, and be obliged to travel slowly through the meshes of the connecting medium of the ovum and uterus; and hence will appear less florid, and fluid, and be more disposed to coagulate than in the "unavoidable."

1115. But coagula will form in the "unavoidable," when the discharge is about to cease, either by proper treatment, or by the mere efforts of nature; and it is in this way, that a stop is put to farther waste.

1116. As we cannot determine the situation of the placenta without much pain and force, before the full period, when the flooding is moderate, it may always be well to treat them as if they were cases of placental presentations; as in doing so, we shall be erring on the safe side. We should insist upon the most perfect tranquillity, and an almost constant confinement to a horizontal position, whenever practicable. Blood at this period may be taken from the arm, if the arterial force be too great; cold applications should be resorted to; and the sugar of lead be exhibited in sufficient doses, either by the mouth or by enemata, as already advised. Kok and others recommend cold astringent injections into the vagina: of the utility of these, as I have said before, I have much doubt—at least, I have never been tempted to employ them. I rarely pay any attention to the state of the bowels, unless they be very costive—then a mild, warm injection of molasses and water, or soap and water, will be every way sufficient. I am thoroughly convinced that much mischief is sometimes done, by the exhibition of even the very mildest purgatives; and the reason will be immediately obvious, when we consider the effects of them. I have frequently permitted my patients, under treatment for uterine hæmorrhage, to be five or six days without a discharge from the bowels; and when I have thought it necessary to stir them, it has been, for the most part, by means of mild injections.

1117. Kok also advises the introduction of some substance, such as lint or rags, into the vagina, well imbued with a fluid styptic, such as a strong solution of alum, or of wine in which alum is dissolved. I should place more reliance upon this latter means than upon the former; as it would in some measure act as a tampon, and serve as a *point d'appui* for coagula to form upon; for at last we must have these form, if the hæmorrhage stop without having done much mischief.

1118. I have advised bleeding when the pulse is active; Kok says, this is useless, if not injurious, in this kind of flooding. In this I cannot altogether agree with him, at this period of utero-gestation; and for the following reasons:—1st. Under any kind of active hæmorrhage, when the pulse is vigorous, the

taking away blood from the arm has uniformly been found useful, by producing contraction by merely unloading the vessels; and more especially, in diminishing the velocity of the blood within them. 2dly. At the period we are speaking of, as we cannot, from the contingencies just mentioned, decide with certainty that the discharge is from the peculiar location of the placenta, without manifest violence, we may act, as far as the bleeding is concerned, as if it were an "accidental" hæmorrhage; especially, as the blood detracted will not seriously weaken the woman, and as there is a strong probability that it may be arrested until the last period of pregnancy, by proper applications and treatment. 3dly. That at the time this accident shows itself, it is for the most part from the mechanical separation of a portion of the placenta, which will not generally be renewed for some time; as the separated vessels, and the other connecting media, possess considerable elasticity; therefore, time will be given for the formation of coagula, provided, the proper means be pursued to favour their production; among which we must reckon bleeding. 4thly. If the fluor be not produced by external violence, or any other cause which will certainly excite the action of the uterus, there is a strong probability, that the discharge will cease for the time being; unless, it be improperly treated, or unnecessarily provoked.

1119. Should any cause whatever excite the contraction of the body and fundus of the uterus at this period; and the discharge be rather the effect of such contractions, than the natural and unavoidable stretching of the neck of this organ, we have great reason to fear, that we shall not be able to suspend these efforts, so as to enable the woman to go her full term of gestation. But we should ever have this intention in view, as it may sometimes be happily fulfilled; and, if it be not, it is decidedly the most proper mode of treatment.

1120. In such cases, we should endeavour, as quickly as possible, to interrupt uterine contraction; for this purpose, we should bleed under the restrictions just mentioned; we should exhibit the sugar of lead with laudanum, as frequently as the exigencies of the case may require; and by enemata, I think,

is much the most prompt and efficacious mode of administering them. From a scruple to a half drachm of this salt, with a drachm of laudanum, and a gill of water, may be thrown up the rectum every hour, or more seldom, as occasion may call for them. All the auxiliary plans I have already recommended, should be put in requisition, and their full adoption rigidly enforced.

1121. Should these means moderate the discharge, and the blood be found disposed to form coagula; and if at the same time uterine contractions have ceased, or even have considerably diminished, we may be encouraged to persevere in the use of these remedies, and entertain an expectation of future success. The introduction of a moderate sized tampon at this time, as a mere *point d'appui*, I am persuaded is highly useful; for, without some such support, the coagula may be discharged, and the hæmorrhage renewed.

1122. The artificial support for coagula, which I have recommended above, is of more consequence than we would at first imagine. It permits the thinner parts of the blood to escape through the meshes of the sponge, by which means the coagula are rendered more firm and tenacious; besides diminishing, by a counter action, the influence of the *vis à tergo*, which is constantly operating to throw them off.

1123. I am aware, that some would rely upon the coagula without it; and I must admit, that they have occasionally been sufficient to save the woman's life; a case of this kind, is related by Leroux;* but he expressly declares, they are not to be relied upon. The sudden movement of the woman's body, for even necessary purposes; uterine contraction; the escape of the waters; &c. may all serve to derange the coagulum which has arrested the hæmorrhage. But the most important use of the tampon under these circumstances, remains to be mentioned; which is, that it causes the coagulation of the blood, merely by presenting a surface favourable to this change, long before this disposition would spontaneously show itself; for in general, this effect is not produced, but when the woman is much

* Observations, p. 258

exhausted, or by the rather tardy, though successful influence, of the remedies previously employed.*

1124. Should our endeavours, however, fail to arrest the discharge, we should, without further loss of time, ascertain the condition of the os uteri, and then proceed precisely as if the woman had arrived at her full time when the hæmorrhage commenced; for it will now be found, they are reduced exactly to the same condition, and will require the same mode of management; of which I shall speak more at large presently.

1125. A woman may escape these anticipating discharges until she complete her full term; but at this time it will be seen that the uterus cannot expel its contents without *necessarily* exposing the patient to the most imminent risk. So alarmingly profuse, and so suddenly dangerous, are these discharges in some instances, that a few minutes are sufficient to exhaust the strength, or deprive the woman of life.

1126. I once witnessed a case in which there was discharged from the uterus, in the course of about fifteen minutes, a full half gallon of blood; and was sent for in another instance, where the woman had expired before my arrival, though there had not, as the midwife assured me, more than a half hour passed from the commencement of the flooding to its fatal termination. These are, however, extreme cases; yet they show how suddenly, and certainly, they may be alarming or fatal. It is confessed, on all hands, that no accident attendant upon conception is equally menacing as the disease in question; and it also emphatically declares to the physician, that much depends upon him that it shall not be very often fatal. It is one of those extraordinary cases, in which nature does less for the preservation of the individual, than almost any other.

1127. This does not arise so much from want of exertion, if I may so term it, on her part, as from the almost entire incompatibility of giving birth to the child, and protecting the woman against flooding, at one and the same time. Yet we learn, from such authority as cannot be doubted, that the woman, left

* Mr. Burns assures us, he never saw a case which required delivery during the first paroxysm, if a proper treatment had been adopted. (Principles of Midwifery, 5th ed. p. 323.)

entirely to herself, will not always perish. The means, however, which nature employs to procure this security, neither offer a practical hint, nor hold out the smallest inducement to imitate her; for they are so entirely contingent, and sometimes so long withheld, that the woman, from her great exhaustion, can scarcely be said to profit by the interposition.

1128. Baudelocque* says, the woman may be preserved "when the orifice is fully dilated, and the mass separate entirely from it, and be so far removed from one side, that the membranes may present. The membranes may then tear spontaneously, and delivery be performed naturally, if the woman, notwithstanding her loss of blood, still preserves sufficient strength, as has sometimes happened." Leroux,† by the formation of coagula, and the spontaneous action of the uterus. Smellie,‡ to the entire separation of the placenta, rupture of the membranes, and the placenta being first delivered, &c. &c.

1129. From this it would appear, that in some rare instances the woman has been saved, by the natural agents effecting the delivery, before she was too much exhausted; but we do not profit by the knowledge of the manner in which this was performed. It is, therefore, now completely established, that the only chance the woman has for life, is by a well-timed, and well-conducted delivery in every case, *cæteris paribus*, of placenta presentation.

1130. Though it be universally admitted, that in the cases we are now considering, there is but one certain mode of proceeding, yet it is not so generally conceded, that it is essential to the entire success of that mode, that the delivery be properly timed, and as properly conducted. All who have written upon this subject, seem to agree in one of the positions, namely, that delivery is absolutely necessary; but many, and indeed I may add too many, have been regardless of the conditions which serve to render this operation availing.

1131. It would be a needless repetition, to cite authorities

* System of Midwifery, Vol. II. par. 986.

† Observations, &c. p. 306.

‡ Midwifery, Vol. II. Col. 18. No. 3. Cases No. 3, 4, 5, 6, 7.

in proof of this; as I have already animadverted upon the same error, when speaking upon the practice of forcing the mouth of the uterus in the accidental hæmorrhage, when not readily disposed to yield. The same, or perhaps more sudden mischief, would follow this rashness in the cases under consideration, than in the former; for the flooding would almost always be increased, in addition to the evils already pointed out.

1132. The time *when* we shall attempt delivery, is of the greatest moment, and deserves particular investigation. Dr. Denman says, "it would be of great advantage in practice, if some mark were discovered, or some symptom observed, which would indicate the precise time when women with hæmorrhages of this kind ought to be delivered;" but declares, "we do not at present know any such mark." Yet almost immediately after decides, that "whenever the case demands the operation, on account of the danger of the hæmorrhage, the state of the parts will on this account always allow it to be performed with *safety*, though not with equal facility."

1133. If this be true, we are certainly in possession of what Dr. D. thought so great a desideratum—for if the parts be in a condition to turn with *safety*, it is certainly all that is required, when "the danger of the hæmorrhage demands the operation." For if the parts permit turning without risk, they must be in a dilated or a dilatable state, and this is all that is or can be required when the condition of the flooding "demands the operation." Then we have a rule which is never failing, when this condition of the parts obtains, if it be true that this can always be done with *safety*, if not with equal facility.

1134. Now it is of importance to inquire whether turning can always be performed with *safety* when the parts are in a condition to permit it; for upon this much depends. It would seem, agreeably to this position, that the whole risk the woman runs in these cases, arises from the "state of the parts," opposing the introduction of the hand; and when they do not, then turning may be performed with *safety*—experience constantly contradicts this unqualified opinion, for the woman may

be so far reduced, that she may expire before the operation is completed, or very quickly after.*

1135. Besides, the manner in which we find the opinion stated by Dr. D., would lead to the persuasion, that so long as the os uteri was not opened, there could be no danger, whatever might be the quantity discharged; than which nothing can be more unfounded. For it is a well-known fact, that the powers of the uterus may be so far impaired as not to perform this office, even at the last moment of existence. In this I am supported by Rigby,† who declares, that were “this rule invariably adhered to, in some cases, it would be attended with danger, as we might wait for the opening of the uterus till it was too late to relieve the woman by turning the child.”

1136. This will be very readily understood, when it is recollected, that the opening of the uterus mainly depends upon the longitudinal fibres acquiring the mastery of the circular; but when the uterus is so far exhausted of contractile power as to remain passive, or nearly so, we shall always find the os uteri closed, (unless previously distended by an exertion of its powers,) though it may be most easily *dilatable*. I may perhaps even acquiesce in the explanation of Dr. Rigby‡ upon this subject; who supposes that the position of the placenta may serve to keep the uterus closed, by surrounding its mouth, by the attachment of its fibres to this part, which is now perfectly passive and unresisting—this is both ingenious and probable.

1137. I must now make a distinction of great practical importance, that has never, so far as I know, been attempted; which, if it be just, (and my experience gives me every reason to believe it is,) will in some measure serve to reconcile the conflicting opinions of writers upon the subject of the *time* when it would be invariably proper to attempt the relief of the pa-

* Of this we have ample proof, in cases 58, 81, 82, 89, 98, &c. of Rigby, in each of which the condition of the parts *easily* permitted turning, but not with *safety*. But I am clearly to be understood, that I attach no censure to the operation; for I am of opinion, it was the only thing that could be done to give the woman a chance—and I have no doubt, it was properly performed. But these cases go to prove the incorrectness of the position I am now examining.

† Essay, 6th ed. p. 40.

‡ Ibid.

tient by turning—it is simply this, that there is a most material difference between the dilatation of the os uteri, or even its dilatability, when effected by the natural powers of this organ, and that passive or quiescent condition, which results from the languor of death.

1138. The one is the result of its organization, when its powers are not impaired or prostrated by disease; while the other is a syncope, if I may so term it, produced, when these powers are exhausted by an excessive waste of blood. This distinction must constantly be kept in view; for on it depends the rational mode of treating this formidable complaint; for if it be not, we prescribe both uncertainly and empirically. An attention to the one, leads us to husband, with the utmost care, the strength and vigour of the patient; while the other makes us regardless, if not prodigal, of it; the one is almost always crowned by success; the other makes us constantly anticipate a doubtful issue.

1139. We can readily account, with this distinction in view, for the difference of success in the operation of turning. When it has been performed, and the dilatation of the uterus effected by the natural agents, it has perhaps almost always been attended by the much desired issue; but when performed, after the flaccidity of approaching death had ceased to make it difficult, it too often has been followed by the loss of the patient. Under this impression, I should say, that, when the os uteri was either dilated or dilatable by the spontaneous operation of this organ; and before the strength of the patient was materially impaired, that then, and then only, was the desirable time to operate; but that, if circumstances prevent advantage being taken of this proper moment, and nothing but a choice of difficulties remain, we should certainly attempt to snatch the woman from her impending fate; but under the cautions already suggested.

1140. But I will attempt to put this subject in a clearer point of view, by considering what ought to be attempted for the relief of the patient, under each of the conditions of the uterus pointed out above; and which necessarily comprehends every state of which it is at this time susceptible.

SECT. IX.—1. *Where the Uterus is but little opened, and is very rigid.*

1141. In this situation of the uterus, all the evils I have already enumerated, when speaking of a delivery under our second division, and the uterus in this condition, would attend a forced delivery at this time—it must not, therefore, be thought of, by whatever authority it may be recommended. Indeed, this has ever been a case of great embarrassment to the writer upon this subject; and makes him, in too many instances, at variance with himself; or he gives his directions so obscurely, and so hesitatingly, as to confuse the judgment of the young practitioner.* It has given rise to two modes of proceeding, each of which is equally wrong.

1142. The first is to force the uterus, however rigid, provided a finger can be introduced; I have already said much upon this plan, and shall only add in proof of it a quotation from Dr. Rigby† every way illustrative of the impropriety of this outrageous practice. “In recommending early delivery, I think it right, however, to express a caution against the premature introduction of the hand, and the too forcible dilatation of the os uteri, before it is sufficiently relaxed by pain or discharge, for it is undoubtedly very certain that the turning may be performed too soon, as well as too late, and that the consequences of the one may be as destructive to the patient as the other. I am particularly led to observe this, as I have lately been informed, from very good authority, (namely, a

* For an instance of this kind, I may cite even Mr. Burns himself—he tells us, in one sentence, “if the hæmorrhage have been or continues to be considerable, we must not wait until the os uteri be much dilated, as we thus reduce the woman to great danger, and diminish the chance of recovery.” A few lines farther, in the same page, he says, “a prudent practitioner will not violently open up the os uteri, but will use the plug.” A little farther on, he declares, “he (a prudent practitioner) will not allow his patient to lose much blood, or have many attacks; he will deliver her immediately, for we know that whenever that is necessary, that it is easy, the os uteri yielding to his cautious endeavours.”—(Princip. 5th ed. p. 324.)

† Essay on Uterine Hæmorrhage, 5th ed. p. 40.

gentleman to whom one of the cases occurred,) of three unhappy instances of an error of this sort, which happened some years ago to three surgeons of established reputation, who, from the success they had met with in delivering several who were reduced to the last extremity, were encouraged to attempt it where but very little blood had been lost, in hopes that their patients' constitutions would suffer less injury, and their recovery be more speedy; which, till the experiment was made, was a very reasonable supposition—the women died, and they seemed convinced that their deaths were owing to the violence of being delivered too soon, and not to the loss of blood, or any other cause.”

1143. The other is, to permit the flooding to proceed until the woman shall be so much exhausted as to render the uterus pliant. Dr. Denman, as I have just noticed, supposed that when danger created the necessity for delivery, that then, from the loss of blood, the uterus would permit it with safety. Dr. Rigby says, that when the uterus contracts firmly round the fingers, we should desist from any attempt to deliver, and wait till the part be more relaxed by pain or discharge; and adds, “as an encouragement, that we may safely suffer a woman to lose more blood, the contraction may certainly be looked upon as a proof that there still remains a considerable portion of animal strength, and that she has not been so much affected by the loss as we before imagined.”

1144. I cannot recommend this plan, though it be the advice of the first authority upon this subject. I am convinced, from both reason and experience, that it is seldom or never necessary; and is perhaps always injurious. To save the woman an ounce of blood, is, as I have already declared, a duty: to save her forty, or perhaps much more, is still a greater one. To follow, then, the speculation of Dr. Denman, or the advice of Dr. Rigby, would be widely departing from that duty. I do not, I cannot adopt them.

1145. What is essentially important to be done in this case? 1st. To save as much, and as quickly as we can, the further expenditure of blood. 2d. To obtain, as soon as the natural powers will effect it, the dilatation or dilatability of the uterus.

3d. To then deliver with as much speed as is consistent with the welfare of both mother and child.

1146. The first and second of these indications are, as far as I have witnessed for the last thirty years, readily complied with by the use of the tampon, and the other auxiliary remedies. They should be instantly had recourse to, and the discharge will almost immediately abate; and in a short time be so diminished, as to give no immediate concern for its effects. By this means we not only staunch the hæmorrhage, but gain most important time; for during this truce the natural agents of delivery will effect the desired relaxation of the os uteri.

1147. This plan, I believe, originated with Leroux; and has been adopted with entire success by myself for many years past. It has also the sanction of Mr. John Burns, who recommends it by saying, "a prudent practitioner will not violently open the os uteri at an early period, but will use the plug, until the os uteri become soft and dilatable." It is true, Gardien thinks the plug will do harm, by exciting the uterus, and thus increase the separation of the placenta—but this is theory; it is not consonant with experience.

1148. The following case, selected from several of a similar kind, will place in a clear point of view the promptness and efficacy of this plan. Mrs. —, while looking out of her window, was suddenly surprised by a profuse discharge of blood from the vagina. Before I arrived, though near at hand, more than half a gallon of blood was expended upon the floor and in a pot. The patient was upon the bed, pale, feeble, and excessively alarmed. I examined her immediately, and found the uterus rigid, and the placenta presenting. She had no pain; nor had she any, previous to the irruption of blood. The discharge was very profuse, and exhausting; but as the os uteri was none dilated, and rigid, I introduced the tampon, and secured it within the vagina by a compress upon the external labia with a T bandage. The flooding ceased immediately, and there was nothing passed the os externum but some of the thinner parts of the blood. After the tampon had been applied about four hours, pains commenced pretty briskly, and in about two hours more, they were of considerable force, so much so as

to press against the external compress with some violence. I now removed the tampon; and the os uteri was found sufficiently dilated to allow the hand to pass with entire freedom; and the delivery was quickly effected, with safety to both mother and child.

1149. For the successful fulfilment of the third, and last indication, it is necessary that the practitioner should be well acquainted with the condition of the uterus, at the moment he is about to commence the operation; that is, he should know how far he may rely upon its co-operation, or how far it may be capable of that degree of contraction which shall secure the woman against a farther loss of blood. This can only be presumed, from taking into view the quantity of blood lost; the debility or exhaustion it has occasioned; and the degree of force the uterus may exert, at each return of pain.

1150. If it be found, that the quantity of blood is not excessive; if, the degree of exhaustion be not alarming; and if, above all, the uterus manifest considerable vigour; the delivery may be accomplished in much shorter time, and with much greater promise of success, (especially to the child,) than if the contrary of these obtain—in the latter case, the delivery must be conducted with the utmost caution, that the uterus may not be too suddenly emptied, and augment the danger to both mother and child. I shall again advert to this subject, when I come to describe the manner of conducting the operation of turning, or effecting the delivery in such cases.

SECT. X.—2. *When but little opened, but disposed to dilate.*

1151. In this situation of the uterus, but few obstacles to turning or delivery will present themselves; since, if the necessity of the case require the operation, the great objection to it is in some measure removed; for this disposition to yield to a moderate force, will secure the woman against an excessive loss of blood, by taking advantage of it, and effecting the delivery in proper time.

1152. But it must be recollected, that though the uterus may be disposed to yield to a certain extent, with even a moderate

force, if it be slowly and judiciously applied, yet it may refuse to relax beyond this, or to such a degree as would not embarrass the operation; nor can it sometimes be made to yield more, unless a dangerous or reprehensible force be applied.*

1153. In a case of this kind, we should gain time, by the employment of the tampon, as directed above; and not subject the woman to unnecessary risk, by attempting to overcome the resistance of the uterus by violence; and it must also be recollected, that, in cases like these, cases so replete with risk, we are to devote ourselves to the best interest of our patients—they should never be subjected to the chance of a fatal hæmorrhage, by our leaving them even for a short time; for neither the plea of other engagements, nor a persuasion they can receive no injury during a short interval of absence, can justify our withdrawing ourselves from them; I could cite a number of instances in support of this, were such confirmation necessary. If it be judged necessary to employ the tampon, we should wait patiently for its effects; but we should wait at the bed-side, or near the person of the sufferer, that we may take immediate advantage of any favourable change in the condition of the parts, for which we were so anxiously looking; or guard against any unfavourable contingency, that may suddenly or unexpectedly arise.

1154. Sometimes, indeed, the os uteri appears entirely closed, though at the time, it is easily dilatable; this case should not be confounded with the one just considered; for here the woman may be readily delivered, should the urgency of the case require it. This situation of the uterus, for the most part, only takes place when the woman is nearly exhausted, and its powers so far impaired, that the agents for the *absolute dilatation* of its orifice are incapable of the effort. Should we wait for the expansion of the os uteri in such instances, we should wait in vain; and perhaps even be made witnesses of the death of the patient.†

* Leroux, Mauriceau, Rigby, &c.

† See Rigby on Uterine Hæmorrhage.

SECT. XI.—3. *Opened to some extent, but very unyielding.*

1155. Were we to consult authors upon the point of practice in this condition of the uterus, we should find but too many sanctioning forced delivery; while some others, would severely reprehend it. I might employ the same arguments here, as have already been used against any violence being committed upon an unyielding uterus; for it may sustain as much injury in the condition supposed here, as in the instances I have been considering; for if the opening be insufficient to permit the hand to pass without the employment of force, it will certainly be insufficient to allow the fœtus to pass without using much more; it should, therefore, be considered full as ineligible to operate in this case, as in the two I have just noticed.

1156. Besides, there is less excuse for being precipitate in this case; since, the desired relaxation will most probably soon ensue, as the os uteri has already yielded to some extent; therefore, by giving it a little more time; by employing the tampon, the delivery may be accomplished without either violence or risk.

1157. Had we no command of the hæmorrhage, we perhaps might be justified in the employment of force; as it would then be a dernier resource; but as we can certainly control the discharge by the tampon, we should be inexcusable to attempt delivery, until it had been properly tried, and it had failed.

1158. But let this case not be confounded with the condition next to be mentioned. For when it is ascertained, that the uterus, though opened to some extent, is, notwithstanding, very unyielding; a young practitioner may, in the confusion and embarrassment created by the exigency of the case, easily run into the error, that this case must be treated as the one just considered. To prevent this, he should carefully examine the condition of the os uteri, by placing, or rather hooking a finger within it, and drawing the edge towards him; if it readily yield, he may be pretty certain it will stretch by a well directed force within its circle.

1159. But, in conducting this examination, I must caution him against a mistake he may readily make, if he be not put

upon his guard ; which is this—he may mistake the movement of the whole os uteri, for a portion of it ; but this error may without difficulty be corrected, by deliberately performing the examination, and attending strictly to the following marks—if a rigid os uteri be drawn, say towards the pubes, its edge against which the finger is placed, will maintain its rigid feel ; and if the finger be made to pass round the whole of its circle, it will be found to be uniformly stiff and round, and not any, or very little enlarged by the effort made upon it—but, on the other hand, if the os uteri be *dilatable* beyond the size we suppose it to be by the touch, it will be found soft ; and will yield without difficulty to the effort made to stretch it : and if the finger be then allowed to pass round it, it will be perceived to be of a lengthened shape, and to have been entirely obedient to the force employed to draw it forward.

SECT. XII.—4. *Where opened to the same extent, but soft.*

1160. I have just declared an error may be committed by an inexperienced or timid practitioner, in this condition of the uterus ; and have pointed out the method by which it may be instantly corrected ; it therefore behooves him not to neglect to entirely satisfy himself, as to the situation of the os uteri, before he finally makes up his opinion on the proper mode of practice.

1161. A careless or ill-conducted examination, may in this instance lead to the loss of the patient ; for, by mistaking the *absolute* diameter of the uterus for the *possible*, he may delay operating so long, as to render it totally unavailing ; for I perfectly agree with Dr. Rigby,* that however important it may be as a general rule, that the uterus must be opened to the size of a shilling, or a half crown, before any attempt is made to introduce the hand, yet if this rule be rigidly enforced, “it would in some cases be attended with danger, as we might wait for the opening till it was too late to relieve the woman by turning ; and for this reason, it seems right we should be sometimes as much influenced by the os uteri being in a state *capa-*

* Rigby, p. 42.

ble of dilatation without violence, as by its being nearly open.”* In my directions for the management of cases in the second condition of the uterus, I noticed this situation of this organ, and remarked that it usually occurred when the woman had flooded to excess—but I have known at least two exceptions to this.

SECT. XIII—5. *Where fully dilated.*

1162. When a case presents this condition of the uterus, there can be no hesitation about the proper mode of proceeding, if the exigencies of it require instant interference; for here all objection is removed to the operation of turning, so far as any mechanical injury to the uterus is to be feared—but this is a rare case; and when it does occur, it would seem to happen but under the following circumstances:—1st. In those women who are wont to have very rapid and very easy labours. 2dly. Where the *edge* of the placenta extends over the os uteri, and where, in consequence of this, the hæmorrhage has not been sufficient to seriously injure the contractile powers of the uterus, though rather profuse. 3dly. Where the pains have been so rapid and powerful, as to suddenly dilate the os uteri, and cause the head to carry the placenta some distance before it.

1163. In the first case, the hæmorrhage will be of the most profuse and alarming kind; and if the woman be not very quickly aided, she will most probably die—this was the case with the poor woman who lost her life before I could get to her assistance—here, not a moment is to be lost; turning must be instantly had recourse to.

1164. In the second instance, the discharge, though perhaps very free, is never so overwhelming as in the first; for the edge of the placenta may be passed over the os uteri but a small distance, and the flooding will of course be in proportion as this may be more or less extensive—in these cases the membranes may even present, rupture spontaneously, and thus save the woman; here the natural agents may accomplish the delivery—but more of this by and by.

* Rigby, p. 43.

1165. In the third case, the flooding will be perhaps, for a period, as alarming, and, for the time of its continuance, as profuse as in the first—but the uterus acting promptly and vigorously, the head of the child is made to press so effectively upon the mouths of the bleeding vessels, as to arrest the hæmorrhage*—here we must act according to circumstances; if we see the patient during the time of her profuse flooding, we should not hesitate a moment to deliver, even though the pains be brisk; for it is entirely contingent that the discharge will be stopped by the intervention of the head—but should we not see the patient until by the progress of the head the bleeding be arrested, we should not interfere, but commit the case to nature.

1166. It has been recommended by some, to rupture the membranes in the expectation of stopping the hæmorrhage, as it frequently does when the placenta is not fixed at the mouth of the uterus—but this should never be done; especially, before the uterus is well dilated or easily dilatable, and for the following reasons:—1st. Because they cannot be reached without great difficulty in some instances, and in these cases, when they are reached, it is either by piercing the centre of the mass, or separating a portion of the placenta, and thus increasing the bleeding surface. 2dly. When they are pierced, and the waters evacuated, it will very rarely stop the hæmorrhage. 3dly. When it does not do this, we are sure to have the difficulties of turning increased. 4thly. That should the flooding for the moment cease after the discharge of the waters, it is sure to return as the pains increase, and as the uterus expands. The only exceptions to these rules, are the cases just mentioned above, where the membranes present themselves in part.

1167. Baudelocque assures us he had seen but one case, where the hæmorrhage ceased after the discharge of the waters, and that was where the placenta was first delivered by a midwife, and the head of the child was made to press so firmly on the mouths of the bleeding vessels as to stop the hæmorrhage.†

1168. It may be inquired, what mode of relief is to be pursued in placental presentations, when they happen at or near the

* Baudelocque, Leroux, &c.

† System, Vol. II. par. 982.

sixth month? These are truly embarrassing cases when they occur; as, for the most part, the uterus is not sufficiently enlarged to admit the hand to turn, and the hæmorrhage is sometimes very alarming; the great risk in these situations arises from the want of disposition in the os uteri to dilate; and, before this is accomplished, the woman sometimes succumbs, from the unrestrained flow of blood.

1169. But women in this situation, even when unaided, do not necessarily die; nature being now and then competent to the task of delivery.* I may remark, as a general rule, and as a consolatory circumstance, that nature, if not interrupted, or when given the best chance, will almost always effect the expulsion of the ovum, previously to, or soon after the sixth month, without the manual interference of the accoucheur—for the most part, then, in such cases, our attention should be directed to the diminution of the hæmorrhage, by such palliatives as we have constantly in our power; among these the tampon stands foremost.

1170. This remedy should be early employed, as it will, by proper management, save a prodigious expenditure of blood; we gain by its application important time; time that is essential for the successful delivery of the fœtus—for by it, the woman's strength is preserved; pain is permitted to increase; and eventually, though tardily, the os uteri is dilated; the placenta and fœtus thrown off; and the flooding almost immediately controlled. The other means which I have already advised, should also be tried; they may aid the general intentions; and render the operation of the tampon more certain.

1171. We have the examples of Mauriceau and others, to attempt the relief of the woman by manual exertion in these cases; but I should, neither from the history of their cases, nor my own experience, be tempted to recommend this plan. I am persuaded, that the temporising mode I have just suggested, is the proper one to pursue—Leroux long since adopted this method, and I have for many years but trod in his footsteps;

* Rigby, Leroux, &c.

and it is but just and proper to add, I have had abundant reason to be satisfied. Besides, in this, all the best writers concur.

1172. Dr. Rigby, though by no means confident of the efficacy of the tampon, confesses, in the cases I am now considering, it might be used with propriety. Had he put this plan in execution, I am persuaded he would have been satisfied with its effects, and would unquestionably have prevented his giving the hazardous advice, "to wait for relaxation," by permitting the patient to flood, until the collapse almost of death should effect it.

1173. Experience has often convinced me, that the relaxation of the os tincæ, so desirable in the cases I am now considering, will be as certainly achieved by time, as by this excessive expenditure of blood; and this time procured by the *interruption of the flooding* by the tampon. When we effect this by this means, we assuredly gain a great deal—strength is saved by saving much blood, and the woman's future safety is almost insured; for as a general rule I may declare, that when no violence is committed upon the uterus by an attempt at forced delivery, the only thing we have to apprehend, is the consequences of the hæmorrhage.

1174. When the woman is farther advanced, say at the seventh month, artificial delivery may most generally be effected,* provided we do not destroy the advantages this period gives us, by improper treatment;—for instance, by rupturing the membranes, and the consequent discharge of the waters; this should, therefore, be especially guarded against. An attention to this point, in these cases, is more important than at the full period; notwithstanding the advice of some accoucheurs to the contrary.

1175. It now only remains to describe the mode of effecting the delivery, when it is judged proper it shall be performed. In doing this, we can give only general directions for the situation of the woman, as we cannot, from her extreme weakness and other causes, always command the most proper or convenient; it may nevertheless be well when we have a control, to

* Leroux, Rigby, &c.

say what in our opinion is the best—that disposition of the woman's body, which will give us the most entire command of the uterus and its contents, will certainly be the most convenient for the accoucheur, and also the safest for the woman, and this position is upon the back, as has been already directed. (702, &c.)

1176. Many accoucheurs, and especially the British, recommend the patient being placed upon her side; I have ever found this less convenient than the plan just suggested; and have always adopted this method, where the situation of the woman would, without injury, permit a choice. The advantages of this position are, first, we may employ either hand, as may be most convenient to the practitioner, without changing the situation of the patient. Secondly, we always have one hand at liberty to co-operate with the introduced one, by placing it upon the abdomen. Thirdly, we can pass the hand more readily in the axis of the superior strait, by having the perinæum free over the edge of the bed. Fourthly, we can regulate the discharge of the liquor amnii, *ad libitum*, a matter sometimes of great moment. But it must be remembered, we are never to attempt to procure these advantages by moving the patient, when that movement would be injurious to her; therefore, when she is very weak or faint, we must operate as well as we can in the position we find her; this is sometimes very awkward and inconvenient, but these are of no consideration, when the life, perhaps, of the poor sufferer, is to be put in competition with our ease. There is not, for the most part, much to be apprehended from merely changing the woman from her back, should she be lying upon it, to her side; but a greater change might be very mischievous; we are therefore frequently obliged to do this before we can operate, as it would be almost impossible to turn, when the patient's back and hips are some distance from the edge of the bed.*

1177. Should circumstances, or choice, induce me to deliver from the side, I always give a preference to the left, provided

* We must always remember to have pressure made upon the abdomen by a judicious assistant, when we deliver the woman upon her side; as we cannot, in this position, as when she is upon her back, perform it ourselves.

an election can be made. The hips should be drawn near to the edge of the bed, and made as salient almost as may be, by the flexion of the body, and the drawing up of the knees. In this position, the left hand is to be used, as with the right it would be very difficult to operate, owing to the axis of the superior strait being very much in advance. If on the right side, the right hand should be employed, and for the reason just stated.

1178. The woman being properly placed (if in our power,) the hand should be gently and gradually introduced into the vagina, and then into the mouth of the uterus, separating the placenta and membranes from it as it advances towards the fundus—when arrived there, the membranes should be broken by pressing firmly against them; but the waters should not be permitted to escape but at our pleasure.

1179. We can command this almost always, as our arm fills up the os externum, and prevents its passing out—from time to time I permit some to escape by pressing the arm firmly against one side of the vagina, until it is sufficiently evacuated; the object of this gradual discharge of the waters, is at once obvious, as it prevents the uterus from falling into a state of atony, by its being too suddenly deprived of them. The feet are now to be seized, and the body made to descend by drawing them down to the superior strait. We should now allow a little time for the uterus to contract; when we are assured it has done so, either by pains declaring themselves, by the child advancing further into the pelvis without our exertion, or by the firm and hardened feel of the uterus through the parietes of the abdomen, we may most safely proceed with the delivery to its termination.

1180. But should the woman be very much exhausted before we commence our operations, we should use additional caution in the delivery—it should be very slowly performed, and we should have, at each step of the progress, assurances, if possible, that the uterus has not lost, or rather that it possesses, sufficient contractility to render the completion of the operation eventually safe, if performed with due and necessary care.

1181. We are advised by some, to pierce the placenta by the hand; but this should never be done; especially, as it is impossible to assign one single good reason for the practice, and there are several very strong ones against it. 1st. In attempting this, much time is lost that is highly important to the patient, as the flooding unabatedly, if not increasingly goes on. 2dly. In this attempt we are obliged to force against the membranes, so as to carry or urge the whole placental mass towards the fundus of the uterus, by which means the separation of it from the neck is increased, and consequently the flooding augmented. 3dly. When the hand has even penetrated the cavity of the uterus, through the placenta, the hole which it made is no greater than itself; and consequently, much too small for the fœtus to pass through, without a forced enlargement; and this must be done by the child during its passage. 4thly. As the hole made by the body of the child is not sufficiently large for the arms and head to pass through at the same time, they will consequently be arrested; and if force be applied to overcome the resistance, it will almost always separate the whole of the placenta from its connection with the uterus.* 5thly. That when this is done, it never fails to increase the discharge; besides adding the bulk of the placenta to that of the arms and head of the child. 6thly. When the placenta is pierced, we augment the risk of the child; for in making the opening, we may destroy some of the large umbilical veins, and thus permit the child to die from hæmorrhage.†† 7thly. By this method, we increase the chance of an atony of the uterus, as the discharge of the liquor amnii is not under due control. 8thly. That it is sometimes impossible to penetrate the placenta; especially, when its centre answers to the centre of the os uteri; in this instance much time is lost, that may be very important to the woman.§

* Baudelocque, † Ibid.

‡ Dr Denman confesses, though he recommends the searching for an edge of the placenta, and penetrating it, that, in performing the latter, "there is rather more danger of losing the child." (Midwifery, Francis's ed. p. 484.)

§ Dr. Rigby admits this, and declares he has "more than once found it." p. 64.

1182. It is a mistake to suppose we produce a greater separation of the placenta when we pass the hand between it and the uterus, than when we pierce the placenta; but if true, it would be no objection to the method I advocate; since both uterus and placenta are pretty firmly compressed by the arm in its passage to the fundus, and the bleeding by this means restrained; and as this is the only objection which is raised against the method recommended, I shall consider it as completely answered by what is now said.

1183. Should the placenta not be found entirely detached from the uterus after the birth of the child, we should give a little time for it to separate spontaneously; and we must endeavour to promote this by friction upon the abdomen over the uterus, unless the flooding continues to be violent; it will then be proper to pass up the hand and separate it, for it may be the bulk of the placenta which keeps up the hæmorrhage, by preventing the uterus from closing sufficiently upon the bleeding vessels.

1184. Before I proceed to the consideration of the third division of my subject, it may be well to inquire into Dr. Rigby's opinion concerning the nature of the uterine vessels, which I am content to call arteries. He says, "the uterine vessels differ very materially from arteries, and particularly in having no such power of contraction within themselves, their contraction and dilatation being absolutely dependent upon the state of the uterus. In the unimpregnated state, they are so small as scarcely to be discovered; but they are well known to increase when the uterus receives the ovum, and to grow in exact proportion to its gravidity; and when, by the complete distention of it, they have acquired their utmost magnitude, their diameters cannot be lessened, until the womb, being again emptied, closes them by the contraction of its whole capacity, and restores them to their original size."

1185. There is no one circumstance in this history that would lead me to reject the idea, that a part of the uterine vessels are arteries, and for the following reasons: 1st, the spermatic and hypogastric arteries furnish the uterus with these vessels; and it is well known that they increase in proportion

as gestation advances ; consequently, vessels which all agree are arteries, enlarge, and in almost the same degree as those within the substance of the uterus, and which are but continuations of them ; 2d, no physical difference has ever been discovered between them.

1186. These two circumstances I consider in themselves as conclusive of the identity of the uterine, and the spermatic and hypogastric arteries. If not so, why should these vessels enlarge in proportion to each other ? And why should the spermatic and hypogastric arteries contract when delivery has taken place, without being dependent for this effect upon the “ contraction of the uterus ? ” Now let us see what would really present itself, were Dr. R.’s opinion substantially true ; he declares, in the unimpregnated state of the uterus, that these vessels “ are so small as scarcely to be perceived.” Now, how should this happen if they possessed no contractile power within themselves ? The mere contraction of the uterus could not alter their real capacity ; it could only change their form by strongly compressing them ; therefore, if what he supposes were even true, they should constantly present to us the shape of flattened cylinders, or puckered tubes ; but the contrary of all this appears when we cut into the substance of the uterus, for we then find that, though the vessels are “ so small as scarcely to be perceived,” yet those we do see, constantly present to us a circular form.

1187. That they do not contract during pregnancy, or immediately after delivery, as closely as arteries in many other parts of the body do, I admit ; not because they do not possess contractibility in an equal degree with these, but because they cannot exert it to the same extent, in consequence of their peculiar connection with the general substance of the uterus—they are every way surrounded by, and connected with, cellular membrane,* which will permit them to lessen themselves but

* I am not wishing to be understood, that there is any thing peculiar in the uterine arteries being surrounded with cellular membrane ; for I am aware that this obtains wherever there are arteries—I merely wish to insinuate an opinion, that they have positively less freedom than the arteries in the other parts of the body, by being more closely tied by their connecting media : and that, as I shall

to a certain degree, so long as the muscular fibres of the uterus remain in an uncontracted state, and for this plain reason, that the sum of their power or disposition to shut themselves up, is inferior to the power which keeps them in some measure upon the stretch. But that they do diminish in size to a certain degree, after being exposed by a separation of a portion of the placenta during pregnancy, I have no doubt, as the cellular membrane by which they are surrounded, will, from its elasticity,* permit them to do so, and thus contribute to the suppression of hæmorrhage.

1188. We must regard the uterus during gestation, as in a state of coercion—every part and portion of it sooner or later is put upon the stretch; consequently, the vessels entering into its substance must enlarge with it, or put the cellular membrane by which they are surrounded, upon the stretch; but as there is a most important intention to be fulfilled by their enlargement, they are found to augment in a ratio correspondent to the distention of the uterus; and they are not only made to yield in proportion to the increased demand for blood, but are also kept in that state by its constant influx, to supply the exigencies of the uterus in a state of gravidity.

1189. This condition of the uterine vessels, then, has two causes contributing to the same end—namely, the unfolding and separating of the fibres constituting the proper substance of this organ, and the constantly increasing tide of blood which flows within it: the first, if it does not directly administer to the enlargement of these vessels, will, to a certain extent, favour it, by taking off that restraint which a state of contraction imposes upon them, and thus make them more certainly obedient

immediately say, for very important uses: and that they have relatively less, would appear evident, when we reflect on the immense increase they suffer during gestation; and though they may contract very considerably, yet it may be insufficient to stop their bleeding without the co-operating contraction of the muscular fibres, for the reason I shall presently assign. Levret makes the proportion of the unimpregnated uterus to that of the impregnated, to be as eleven and a half to one. Now, if the arteries augment (as is reasonable to suppose they do) in the same proportion, it will be seen how much their calibers must be reduced, before their contraction alone can stop hæmorrhage.

* Bichat, *Anatom. Gen.*

to the impulses of the spermatics and hypogastrics—the vis à tergo, then, of these vessels, may be considered as essentially contributing to their distention. Hence we can no longer recognise the almost imperceptible vessels of the unimpregnated, in the large canals, if we may so term them, in the advanced impregnated uterus.

1190. Let us now suppose the supply to the uterine vessels to be cut off by any means whatever, and we make a section of the uterus near, or at the full term of gestation, and while yet occupied by the ovum—what will this section discover to us? One of two things certainly—either the vessels small and contracted, or still patulous and large. If in the first situation, Dr. Rigby's opinion of their nature, is at once proved to be unfounded; if in the latter, will it not confirm the notion I entertain, that they are kept in this situation by force, as above suggested? (1187) If this be true, will not the same cause produce the same effect, when the uterus is emptied of its contents, but remains in a flaccid and uncontracted state? And will not the same consequences follow from the same cause in both instances, namely, a discharge of blood from the separation of the whole, or a part of the placenta?*

1191. If these statements be true, (and I sincerely believe them to be substantially correct,) it will follow, that the uterine arteries cannot contract sufficiently to stop hæmorrhage, however eminently they may possess contractibility, so long as the muscular fibres of the uterus are in an uncontracted state; because, their peculiar connection with them, will necessarily prevent it—and farther, I believe, that this kind of union is highly important to the uterus after the expulsion of the fœtus, to enable it, or perhaps I may say to induce it to contract, to throw off the placenta, and prevent after hæmorrhage.

* I might also insist, that, should the uterine vessels be found large and patulous, when the flaccid uterus was cut into, that it would not confirm Dr R's opinion, should the explanation just offered not be admitted; as it might be a reasonable conjecture to suppose, that a cause capable of producing an atony of the muscular fibres of the uterus, might also be capable of rendering the uterine arteries passive: and consequently, this uncontracted condition of them would tend to prove that this was really the case, rather than that they had been endowed with the power of self-diminution.

1192. They perform this valuable end by lessening themselves, and obliging, in a certain degree, the muscular fibres to follow them—this proves an extensive and congenial stimulus, which, for the most part, is successfully exerted to this end—but, should the contractile fibres of the uterus be indisposed, or unable, from the action of any cause capable of this effect, to manifest this power, hæmorrhage must necessarily ensue; for the arterial extremities, which are exposed by the separation of the placenta, will and must remain open, not because they do not possess the faculty of contraction, but because it cannot be successfully exerted, for the reasons I have already assigned—therefore, for hæmorrhage to cease, requires the co-operation of the contractile fibres of the uterus; and to make them obedient to this end, is the great aim of all our exertions.

1193. From a review of the inquiry I have just made, it will be evident, that as far as regards effects, there is but little difference between Dr. Rigby and myself; but much, as regards structure and function—my object, in this attempt, is the removal of error, and not the expectation of any great practical advantage, though I am persuaded some benefit may be derived from these considerations, in the cure of hæmorrhages of this kind—for, upon the notion of the uncontractibility of the uterine arteries, Dr. R. condemns the use of that class of medicines I call astringents; now, I have declared, I have frequently found advantage from the sugar of lead in such cases, (and have recommended its employment with no inconsiderable confidence,) which must be admitted to be an astringent, and one of no common power—in the *modus operandi* of this medicine I may be mistaken, but I cannot be in its effects. There may be many other substances belonging to this class, which may be equally, or even more efficacious upon trial; but we are to be deterred from employing them, because the uterine arteries “cannot contract of themselves.”

1194. In entering upon the third and fourth divisions of my subject, it will be important to their consideration, that I say a few words upon the changes effected in the uterus itself, by the delivery of the child, and the expulsion of the placenta.

1195. I regard the uterus as a hollow muscle; and, like the

other hollow muscles, it has no separate or independent antagonising power; but it has, like them, a compensating one within its own organization or structure;* and also, like all the muscles of this kind, when not distended by some distracting force, will contract by virtue of some power of its own, and upon the healthy disposition of this power in the uterus does the welfare of the woman depend, in every instance of child-birth or abortion.

1196. I shall not stop to inquire, as its consideration is not immediately involved in my present investigation, whether this is a legitimate muscular contraction, or the exertion of that power, common to many organic, as well as inorganic substances, termed elasticity. My own opinion, however, is decidedly made up, that the efforts the uterus makes to expel its contents, and to close itself after it has performed this office, is by virtue of a genuine muscular contraction.

1197. In the performance of these duties, two distinct powers are concerned. One is shown by its constant disposition to lessen the cavity of the uterus, whenever it may be put upon the stretch, or at least whenever the cause is removed, that placed it in this condition. The other declares itself by alter-

* I say, that the uterus has, like the heart, and perhaps all other hollow muscles, an antagonising power within itself, and this by its own organization. I shall attempt to prove this, by stating, that in consequence of that contraction, which we call the alternate contraction of the uterus, having taken place, a considerable portion of the blood which at that moment occupied the uterus, is driven *quâquâ versum* into the general system; a facility for which is derived from the frequent anastomoses of the arteries and veins, and by the latter not having valves. This is proved by the diminished thickness of the uterine parietes, and by the whole surface becoming paler at the moment of contraction. This state of things continues, until this effort has ceased—so soon as this happens (which may be longer or shorter, according to the power which governs the contraction, and the state perhaps of the muscular fibres of the uterus itself,) the vessels, which had just been deprived of a portion of their contents by the contraction, will at the moment of relaxation be but imperfectly filled, and perhaps even a genuine vacuum be induced; but, so soon as the restraint imposed upon the whole of the uterine vessels by this contraction is taken off, the blood will instantly rush into them, to restore the disturbed equilibrium, and thus again distend these vessels; which distention will prove a stimulus to the uterine fibres, and thus induce a new contraction: and in this way would I account for the alternate pains of labour.

nate contraction, and is, perhaps, only an exalted degree of the same power, when urged by stimuli to this exertion, as in child-birth, abortion, or from any other circumstance which may require its interference, to expel a foreign body from its cavity.

1198. The first of the powers just noticed, has been termed "tonic contraction;" and the second "spasmodic contraction," from its being usually, though not necessarily, attended with pain. This latter, it must be remembered, cannot take place without the former having preceded it, though the former can happen without the latter.* (170; 171)

1199. Such then is the economy of the uterus in its healthy condition, that it immediately exerts the tonic force with which it is endowed, to close upon its contents, and accommodate itself to the exact size of such contents—thus, so soon as the liquor amnii is discharged, the uterus instantly diminishes its size, by virtue of this tonic power, and this in the exact proportion to the quantity of water displaced; and so plastic is this power, that it makes the parietes of the uterus take the inequalities presented by the surface of the child; and, when the child is delivered, it reduces itself so much as to compress the placenta, and force it from its attachment; and eventually expels it from its cavity: when this is achieved, it goes on reducing itself, until it interrupts in a great measure the supply of blood from the spermatics and hypogastrics; closes almost completely the mouths of the vessels exposed by a separation of the placenta, and thus prevents any inordinate flow or hæmorrhage.

1200. From this it appears, that the safety of the woman depends almost entirely upon the healthy exercise of that power I have just termed the "tonic contraction;" and, on the contrary, that the risk she may run in giving birth to her child, is in exact proportion to the diminished force of this power; of course, the preventing and stopping of floodings, will depend upon recalling it when absent, or upon augmenting it when deficient.

* See Essay on the means of lessening Pain in certain Cases of Labour, &c.

1201. The tonic power of the uterus may be feeble, or altogether wanting—it may be lost in every portion of the uterus, or only in a part; thus the fundus may possess it, and the body and neck be without it; this may give rise to the inversion of the uterus—the fundus and neck may be deprived of it, while the body may enjoy it—this may occasion the hour-glass contraction: the body and fundus may be exhausted of it, while the neck retains it—this may produce the concealed hæmorrhage. The body and fundus may be firmly contracted, while the neck of the uterus may be flaccid—this may occasion flooding, if the placenta has been attacked in that vicinity.

SECT. XIV.—*Causes of Uterine Inertia.*

1202. The remote causes of uterine inertia are said by Leroux and others to be—1st. A general morbid condition of the body, as tendency to scurvy, &c. 2d. Long illness. 3d. A depraved condition of the circulating mass. 4th. Unusual laxity of fibre, as in leucophlegmatic habits, &c. 5th. Over distention, from an excess of liquor amnii. 6th. Strong emotions or passions of the mind. 7th. A long protracted labour. 8th. A previous hæmorrhage. 9th. Lesions in the proper substance of the uterus itself.

1203. But the condition of the tonic power is far from being always regulated by the contingent situation of the system generally; we cannot infer its absence from the debilitated state of the body at large; nor can we calculate upon its presence with certainty, because every other function is carried on vigorously—this is a fact well known to every practical accoucheur, and should teach us this highly important caution; to act as if this power were, or easily might be expended, and to consider no woman safe from the casualty of its exhaustion, until we are assured to the contrary by a careful examination.

1204. Fortunately for the patient, as well as for the practitioner, this power, when weakened, nay, even to excess, may almost be recalled by proper means, and is almost certainly obedient to the judicious use of appropriate stimuli; but upon

the time and manner of this application much will depend, as I shall show presently.

1205. I am now to consider hæmorrhage as it may occur, before the placenta is expelled. And it must be constantly recollected, as I have said above, that this cannot happen, but when the placenta is in part or wholly separated from the uterus; and that this separation is only effected, in the cases I am now speaking of, by uterine contraction, unless some mechanical violence has been previously offered, which was capable of producing this effect. For, so long as the placenta preserves its entire continuity with the uterus, no flooding can ensue, should this viscus be even in a state of complete atony or exhaustion.*

* Unless some mechanical violence has been done to the uterus, either from external impressions, or from some incautious manœuvre performed within its cavity, as in the act of turning, or the injudicious use of instruments, the placenta will preserve its connection with the uterus, and there will consequently be an exemption from flooding: but this connection may be destroyed in a moment, by the causes just stated.

Since writing the above note, an interesting case has occurred, which completely proves my position. Mrs. —, on the 23d of March, 1823, was taken, at her full period, with slight pains, and the other marks of approaching labour. Soon after these had manifested themselves, she was seized with violent vomiting, and considerable hæmorrhage: there was an almost constant effort in the uterus to throw off its contents, together with occasional increase of pain. I was now sent for, and found the patient as above stated. The vomiting returned from time to time; and whenever it did so, there was an increase of the hæmorrhage; and this also occurred when the alternate pains were on, which gave rise to a suspicion that it was a placental presentation. I ordered the patient to her bed; and, upon examination, the membranes were found protruding, and the child rapidly advancing. I ruptured the membranes immediately, and the hæmorrhage was instantly suspended: in a few minutes more, the child was expelled, but still-born. The navel-string was cut, but not a drop of blood issued from either portion of it. Every effort was unavailingly made, to resuscitate the child. The placenta was found loose in the vagina, and, upon examining its surface, it was found covered over its whole extent with a thin black coagulum; an evidence it had been entirely separated, and the child thus made to perish. The uterus appeared to contract well, and every thing was promising, for an hour; at the expiration of this time, the uterus relaxed, and a profuse discharge instantly took place. When I arrived, (for I had taken my leave,) the patient was very faint, extremely sick at stomach, and very restless, which necessarily augmented the discharge. I immediately commenced a pretty brisk friction upon

1206. As there is considerable variety in these cases, it will be well, for the sake of perspicuity, to consider them under the following heads:

- a. 1st. Where there is a partial separation of the placenta, but the uterus enjoying some tonic power.
- b. 2d. Where there is a partial separation, but the uterus possessing very little or no tonic power.
- c. 3d. Where there is a partial separation of the placenta, while the remaining portion is too adherent, and the uterus contracts but feebly.
- d. 4th. Where every thing is as at 3d, except that the uterus enjoys its full power.
- e. 5th. Where there is an entire or partial separation, but the uterus in a state of exhaustion or syncope.
- f. 6th. Where there is either a partial or complete separation of the placenta, and where the body and fundus are in a state of inertia, while the neck enjoys its tonic power.

a. I.—*When there is a partial separation of the Placenta, but the Uterus enjoying some tonic power.*

1207. In this case, the last efforts of the uterus to expel the child may occasion a partial separation of the placenta, and of course there will be a greater or less discharge of blood: 1st. As the exposed surface may be large or small. 2d. As the contractile power of this organ may be more or less perfect. 3d. As the circulation of the blood may be more or less hurried.

1208. In almost every instance, after the birth of the child, we find a quantity of blood issue from the vagina; but the young practitioner must not look upon this as an hæmorrhage, unless it continue some time, and has an evident effect upon

the abdomen—the uterus soon contracted, and did not again relax. Two grains of opium were ordered every two hours, until the patient should become tranquil. On the following morning she was found much recruited, and had no unpleasant symptom afterwards.

the pulse.* In this case, he is immediately to attempt to arrest it, by soliciting an increased contraction of the uterus, by pretty briskly passing his hand over the region of the uterus, and from time to time attempting, as it were, to grasp the uterus by closing his fingers upon it.

1209. By proceeding in this manner, he will almost instantly find the uterus harden under his hand; a coagulum of a greater or less size will escape from the os externum; a slight pain may come on, and the placenta may be thrown down into the vagina. When this contraction takes place, as it almost always does, where the woman has not been too much exhausted previously, either by a long protracted labour or disease, the discharge of blood is quickly put a stop to; the uterus diminishes much in size, and retires almost within the pelvic cavity, while the placenta is entirely detached from the uterus, or may be even expelled from the vagina. This is, perhaps, the most simple case of flooding that can occur, and I believe it never requires any other management, than the mere friction upon the abdomen; its termination may not always be so sudden as I have now stated, but it is sure to take place in a very short time, and just as fortunately as I have described it to do.

b. II.—Where there is a partial separation, but the Uterus possessing very little or no tonic power.

1210. In this case, the same cause may produce the same effect as in I.; but the uterus may be in a very different condition; here there will not only be a discharge of blood in proportion to the surface exposed by separation, and the state of the circulation, but also a continuance of it, commensurate with the atonic condition of the uterus.

1211. This state may continue for a longer or a shorter time, as it may be governed by the force of the remote cause which

* Some women will bear a much greater loss of blood than others; and, therefore, we are to decide upon the propriety of interference, from the effect which this loss has upon the system, rather than from the quantity which has been expended. If we do not attend to this rule, we shall interfere unnecessarily, where the powers of the system are every way competent to the exigencies; and in other cases, we may delay assistance so long as to render it unavailing.

induced the atonic state of the uterus, or as it may be of easy, or of difficult removal.

1212. In this, like every other case of flooding at this period, we should endeavour, as quickly as possible, 1st. To remove the remote cause which induced the atonic state of the uterus, wherever it is evident and practicable. 2d. To excite, as soon as may be, uterine contraction. It will be readily perceived, that we cannot have a control over some of the remote causes of inertia just enumerated, and, therefore, our chief attention should be directed to the fulfilment of the second; and this should be immediately attempted by frictions upon the abdomen as above directed; in these I have the greatest confidence, and never fail to employ them, whether there be hæmorrhage or not, with a view to promote contraction, if the uterine globe be not felt firm upon the application of the hand to the abdomen, immediately after the child is removed from the mother; and when there is a flooding, I chiefly rely upon them to restore the energy of the uterus; and in this I have never been disappointed—its influence is as prompt as it is efficacious; indeed, I consider this as indispensable, let whatever other means be employed.

1213. I have never had the misfortune to meet with a uterus that was insensible to this mechanical stimulus, or to lose a patient from the immediate loss of blood; and I can with great truth affirm, that this simple plan has constantly appeared to me to be the chief agent in arresting the most formidable floodings of the kind I am now considering. The external face of the uterus, as felt through the abdominal parietes, appears to me to be equally sensible to stimuli of the mechanical kind, as the internal surface of it, and certainly offers facilities and advantages, the cavity does not: 1st. It is always accessible to be acted upon; 2d. No risk is run by very freely stimulating it with the extremities of the fingers; 3d. It excites but very little or no pain if judiciously managed; 4th. No fear is to be apprehended of increasing the discharge, which is not always the case, when the hand is employed within the uterine cavity; 5th. No danger of inducing inflammation or other injury, as may readily happen by the introduction of the hand.

1214. This mode of arresting hæmorrhage by reviving the powers of the uterus, is not new—it was long since recommended by a Mons. Dassé,* an accoucheur of Paris, whose method, though I do not exactly follow it, I will give in his own words. “Il ne faut que porter les deux mains sur la région hypogastrique, et comprimer mollement le corps de la matrice par un mouvement tantôt circulaire, tantôt de droite à gauche, de gauche à droite, de haut en bas et de bas en haut. Tous ces différens mouvemens sont absolument nécessaires, à cause des différens plans de fibres que s’entrecroisent et forment une espèce de réseau.”

1215. I have just observed, that I do not follow exactly his method, though the effect is precisely the same—one hand is all that is necessary, or that can be conveniently employed; and if this be industriously, and properly used, I am persuaded that it will rarely fail. I must, however, in justice to myself declare, I was in the habit of employing this method long before I was aware it had been previously recommended by M. Dassé.

1216. But in adopting this method, we are to take care we do not abandon it too soon; for it is not sufficient that we procure the contraction of the uterus, but that we maintain it in this condition for some time, by the continuance of the friction. And I would here caution the inexperienced practitioner against alarm, when almost at the instant he feels the uterus hardening and diminishing under his hand, he hears very plainly a considerable discharge of coagula and fluid blood from the vagina; and at the same moment he finds the uterus retiring as it were from under its pressure.

1217. This discharge is but the effect of the contraction induced by his manœuvres upon the external surface of the uterus, and must be regarded as a favourable omen, as it assures us that the uterus is about to regain its powers. Perseverance is now all important; the frictions are to be continued until he has sufficient evidence of the permanency of the contraction, by noting that the uterus no longer relaxes itself, as it did most probably at the commencement of his operations.

* Journal des Savans, d’Aout, 1792, p. 494.

1218. Should this plan, however, not succeed in detaching the placenta, and stopping the flooding, we are, secondly, to deliver the placenta by the introduction of the hand within the cavity of the uterus, as this mass must now be considered as the cause of the continuance of the hæmorrhage, by preventing the uterus from contracting sufficiently to shut up the mouths of the bleeding vessels. It will be found either partially or entirely detached; if in the first condition, we insinuate carefully the fingers behind the loose portion of the placenta, and gently separate the adhering part; we then grasp the mass in the hand, and rotate it several times against the internal face of the uterus, with a view of more certainly procuring subsequent contraction; nor must the hand be withdrawn until this is perceived—should the uterus, however, be found to contract firmly upon the hand immediately after it has effected the separation of the placenta, it may be gradually, but never suddenly withdrawn.*

1219. If the placenta be found detached from the uterus, it must be withdrawn, but practising the precautions just inculcated. We must not, however, consider the patient free from all risk, because the placenta is extracted; we should examine the condition of the uterus, by again placing the hand upon the abdomen; if it be well contracted, it will be found hard, and about to sink within the pelvic cavity, which will give us strong grounds to believe, that the woman is about to do well; but if, on the contrary, the uterus is found large and not very firm, we have every reason to fear there will be a renewal of the flooding, and the frictions must again be had recourse to.

1220. It must be confessed, however, the young practitioner may not be able, without some further directions, to detect the flaccid condition of the uterus, though he may be very able to perceive a contracted one—I shall, therefore, state, that when the uterus is not contracted, the whole abdomen appears equally soft and pliant—if the extremities of the fingers be pressed backward from the pubes, no hard unyielding tumour is per-

* If the uterus regains its wonted powers, the hand, with the placental mass, would be expelled almost immediately from its cavity; but when this effect is even perceived, the hand should not be permitted to leave it too suddenly.

ceived; and if he inquire into the state of the discharges from the vagina, he will find them, if not profuse, more abundant than they should be—when all these circumstances combine, he may be certain the uterus is in a state of inertia; and he will soon be convinced of this after he has commenced his friction upon the abdomen, (and he should not now lose a moment before he commences it,) by finding it harden sometimes suddenly, at others gradually, under his hand, and presently sink, when well conditioned, into the pelvis, or at least the fundus will be found below the umbilicus.

1221. In all cases of severe flooding of this kind, I am in the habit of directing the nurse, or any intelligent woman, to perform this duty from time to time, for an hour or two after my departure; and, more especially, should there be a return of discharge, that no evil may arise until I can myself again attend to the patient.

1222. 3d. I think it best to call in every aid in such cases that may be at command; and I frequently exhibit a few grains of the sugar of lead, with a pretty full dose of opium; repeating the former with a diminished dose of the latter, every fifteen minutes or half hour, until I am pretty well assured it will be no longer necessary in such crowded doses—I, however, do not give up the use of acetate of lead, unless the stomach be very sick, for at least twelve hours, though I diminish the quantity. In alarming cases, I first exhibit from five to ten grains at a dose, unless contra-indicated by the state of the stomach: but when the necessity is less, I reduce it to two grains every one, two, or three hours, as the case may require. Should much pain attend, I give laudanum or opium until it is relieved or much subdued.

1223. It is not unusual, where the woman has sustained considerable loss of blood, for the stomach to become much deranged—vomiting or great nausea, is almost always an attendant upon it; and when either takes place, it becomes very fatiguing and distressing to the patient. If she vomit, the exertion is so severe as sometimes to exhaust almost to syncope: and during this act, there is almost always a greater or less discharge of blood, which at this moment can be but ill spared

—if it be sickness of stomach, it renders the patient so wretched, that she cannot rest quiet for a moment together in one position; she, therefore, tosses about from place to place, until she is almost spent—I dread this latter condition more than an occasional effort to vomit, as it seems to interrupt the tonic contraction of the uterus, by the influence which nausea is wont to exert upon all muscular power; as well as to induce immediate exhaustion, by producing unceasing jactitation. Nothing tranquillizes the stomach under these circumstances, so far as I have observed, like opium in the solid form—a newly prepared pill, of two grains of the opium, with a very small portion of soap, to facilitate its solution in the stomach, should be given every hour or two, until the vomiting ceases, or the stomach becomes reconciled.

1224. Should there be a too abundant discharge after the expulsion of the placenta, though not amounting to a flooding, it should be moderated by the use of the lead; and the most effectual mode of exhibiting it, is a watery solution of it with laudanum in form of enemata, unless the woman be too weak to have it administered in this manner—I have already directed the quantity, &c. when thus used.

c. III.—*Where there is a partial separation of the Placenta, while the remaining portion is too adherent, and the Uterus contracts but feebly.*

1225. A flooding may be excessive under the circumstances mentioned in this variety, and considerable time may be lost in vainly soliciting the extrusion of the placenta by frictions upon the abdomen, and efforts exercised upon the cord,* before it is suspected that this mass may be too adherent—it is, fortunately, but of rare occurrence, but its management on that account should be the better defined.

* Great care should be taken, in every attempt to deliver the placenta by a force applied to the cord, that it does not exceed the degree it will bear—much inconvenience is sometimes experienced from its separating at its union with this mass, when it becomes necessary to deliver it by the hand, as it is not easily distinguished from the uterus itself; especially, if the hand be compressed by the contractions of this organ.—See Chapter on the mode of delivering the placenta, when the cord is ruptured.

We can never know, with certainty, that the complication here spoken of exists, until the hand be passed into the uterus, and a proper examination made of the condition of the placenta; for this case, as far as regards common symptoms, resembles almost every variety of retained placenta, and nothing but a strict search can justify its being pronounced a case of adherent placenta; this excuse is, I am aware, but too frequently employed to justify the introduction of the hand into the uterus, to bring away the after-birth by force, when it required but a little more time, or a little more address, to be delivered by the natural agents. We frequently hear young practitioners boast of the difficulties they have encountered in delivering the placenta; but rarely meet with an experienced one, who declares the same thing.

1226. In this country, I believe, that the adherent placenta is of very rare occurrence; while in Great Britain, or rather perhaps in London, it is comparatively frequent, agreeably to the testimony of Dr. Ramsbotham.*

1227. This condition of the placenta may be suspected, when the uterus continues large, though pretty firmly contracted; when there is a constant issue of blood, and that florid; when the placenta is not within reach of the finger; and when, after a gentle force is applied to the cord, it is found to retract, as if an elastic string had been stretched; when, then, the quantity of blood expended from the vagina would render manual interference necessary; and more especially, when frictions, the exhibition of the sugar of lead, and other "appliances," have failed to stop the discharge, or to expel the placenta, the hand should be introduced, and the separated portion of the placenta sought for—from this part the hand should take the direction of the adhering portion, and if it appear that it would require considerable force to destroy its connection with the uterus, every attempt to detach it should be instantly desisted from, and only the piece or pieces found loose, or not adhering, be removed; the remaining part must be trusted to the efforts of nature.

* Practical Observations on Midwifery, page 80, American edition.

1228. There will necessarily be a difference both in the degree, as well as in the extent, of adhesion in individual cases—while some may be only rather more strict than is usual, others will seem to have the substance of the placenta identified with that of the uterus—and, while a small portion only may be too adherent in one case, a large one may be so situated in another: but in every instance, where there is a separated portion, there will be a discharge of blood, either fluid or coagulated; and that, in proportion to its accumulation; or the activity of the uterine fibres. These cases are almost always accompanied by pain, though not of the most severe kind; they, however, make but little impression upon the placenta, nor do they much diminish the size of the uterus; yet with each return there is more or less blood discharged, and the woman rendered faint by the frequency, rather than the quantity evacuated at each contraction, except where there is a large portion separated; then, as in every other instance, she will be more quickly exhausted.

1229. In cases like these, it seems to be agreed, that nothing but putting the uterus in a condition to contract, by the removal of such portions of the placenta as can be readily detached, will put a stop to the flooding, or even moderate it; and it seems also well understood, that even this does not place the woman beyond danger—the efforts of nature are not always availing, and the woman dies from the mischief created by a retained portion of the placenta.

1230. Should the discharge continue after a part of the placenta is removed, the acetate of lead, and frictions, should be continued; and astringent and detergent liquors should be thrown from time to time into the uterus itself, by means of a proper syringe.*

* A considerable variety of substances have been proposed for this purpose; as alum and water, wine and water, wine alone, vinegar, &c.—but what has answered best in my hands, in the very few instances of this kind which have fallen under my notice, has been a strong infusion of camomile flowers, in which a piece of quicklime has been slacked, and then permitted to settle perfectly clear. This may be used, moderately warm, three or four times a day, or oftener, if required. The common pewter syringe for enemata, with a flexible tube attached to it, answers perfectly well—the gum elastic tubes, for the throat

1231. Let this case be treated with what address it may, it is replete with danger to the woman; she may sink from the pertinacity of the discharge, or succumb under fever, or other evils excited by a putrefying placenta. It is no part of my plan to speak of the subsequent treatment of such cases; I can with much confidence refer, for more information upon this head, to the very able treatise of Dr. Ramsbotham just mentioned; and I may here take occasion to say, that, not only for this subject, but several others of high interest, I would recommend every practitioner of midwifery to the perusal of his work.

d. IV.—Where every thing is as at III., except that the Uterus enjoys its full power.

1232. This variety is not only less frequent, but is much less dangerous, than the one just spoken of; for the uterus, when enjoying its full powers, will contract, with sufficient force to prevent any serious mischief from hæmorrhage, though there may be considerable waste before the uterus is emptied of the placenta—this requires the same manual treatment in the beginning, and the same medical routine for the subsequent symptoms.*

or bladder, may be very readily fixed to the extremity of this instrument. In one instance, I have seen port wine and water, with a little alum, used with advantage.

* There is a variety in this division, which cannot be considered as strictly belonging to the subject under consideration; yet its own importance will, I hope, be a sufficient apology for introducing it here—it is, where the placenta is completely adherent, and the uterus powerfully contracts upon this mass, and prevents the introduction of the hand, or even of a couple of fingers, for the removal of it, were this even practicable. It is, fortunately, of rare occurrence—I have seen but two cases of it; in neither of which was there flooding; indeed, scarcely a drop of blood was discharged in the one instance, and in the other, only a few small coagula were expelled, the whole not amounting to four ounces. This case must be trusted to nature; for, after repeated examinations, the uterus was not found to relax sufficiently, even to attempt the removal of the placenta. This mass was expelled entire, on the third day, in the one case, without any unpleasant consequences; but in the other, it employed many days before it was thrown from the uterus, and then in small detached masses, accompanied with great fætor, thirst, and fever. The patient eventually did well, though she remained weak a considerable time.

c. V.—Where there is an entire, or partial separation, but the Uterus in a state of exhaustion or syncope.

1233. This variety is most truly alarming, and requires the most prompt and judicious interference, that the woman may not almost instantly die. This case occurs: 1st. Where a long protracted labour has much exhausted the patient, previously to delivery, but where delivery has eventually been unexpectedly sudden. The uterus, from previous fatigue and exertion, becomes enfeebled, though capable for the moment of a powerful effort, which suddenly terminates the labour, but by which its power is expended—the placenta, from the long continued and frequently repeated pains, was ready to separate, and waited but for the contraction which expelled the child, to destroy its connection with the uterus, and to fall loose or nearly so into its cavity, and thus give opportunity to the exposed vessels to pour out a torrent of blood. 2d. It takes place, and this more frequently than from the cause just mentioned, when the labour has been very rapid; and where the child seemed to be floated from the uterus by the sudden gush of the waters—under such circumstances, the uterus is sometimes instantly deprived of its tonic power, and thrown into a state of absolute *syncope*, as it has been happily termed by Leroux. Or, 3dly. It may arise (and it but too often does) from the too hasty delivery of the body of the child, after the head has escaped through the os externum—here I would wish to caution the young practitioner against one of the most formidable errors that can be committed against sound practice, or just principles. For at this moment, the uterus has expended much of its power, in pushing the child thus far; and if some little time be not allowed it to recover its nearly expended strength, before the body is hurried through the pelvis, it will be sure to increase, and perpetuate the inertia into which it has just fallen from severe exertion: hence, we have always to apprehend a flooding, where the shoulders are expelled by the same effort that delivers the head; more especially, if the child be large, and the waters but very recently expended: or where the child is small, and the quantity of water great, and that but a short

time discharged. Should this condition be accompanied with a partial separation of the placenta, an alarming hæmorrhage will necessarily ensue; and if with an entire one, death may be the almost immediate consequence.

1234. When hæmorrhage proceeds from either of the causes just stated, it will be evident, that nothing but the most prompt interference, and the employment of the most active agents, can prevail against the formidable issue of blood, that pours from the vagina. No time must be lost by temporising; the woman will sink if not instantly succoured. Frictions upon the abdomen should be quickly commenced, and be actively pursued; large doses of the acetate of lead and opium should immediately be exhibited—cold water poured from a height upon the abdomen, if the frictions do not very soon recall the contractile power of the uterus; and, if much faintness from the loss of blood attend, a small quantity of moderately strong brandy and water should be given every few minutes, until this disposition is relieved; this will pretty soon follow its exhibition, if the means for re-exciting the uterus should be successful. Fresh air should be freely admitted, but the feet and legs should be kept warm, by bottles of warm water or heated flannels; the ergot, if at hand, or to be readily procured, might be tried, provided nausea or vomiting do not attend.*

1235. But I must here repeat, that my great dependence is upon the abdominal frictions; having, so far, never known them to fail. Some practitioners have introduced ice† into the cavity of the uterus, under these circumstances, and, it is said, with success. I can say nothing upon the influence of this remedy from my own experience; and were I tempted to employ this substance, I should not judge it necessary to conduct it within

* I do not mention the ergot as a remedy in uterine hæmorrhage, from my own experience; but have no hesitation in believing from theory, and from the practice of those who are every way worthy of credence, that it may be essentially and promptly useful. The proper dose will be twenty grains, and should be repeated in fifteen minutes, should the first not succeed.

† Levret, I believe, was the first who had recourse to this remedy in the manner above stated; and it has since been recommended by others—it has lately been advised by Mr. Barlow.

the cavity of the uterus; from a belief (not, however, I confess, confirmed by trial) that it would be every way as effectual, if it were held in the vagina. I shall illustrate this condition, by a case taken at random, from a number of similar ones—for all these cases are so much alike, as to require but one general mode of treatment.

Mrs. — was delivered by a midwife, after a very easy, but rapid labour—the placenta was very quickly expelled, as it was found, as the midwife said, loose in the vagina; a very profuse flooding immediately ensued, for which she attempted nothing, assuring the friends of the lady it was a common occurrence, and from which nothing was to be apprehended—but the patient becoming pale and faint, her friends were alarmed, and I was sent for in great haste; when I arrived, it was said the patient had been delivered about twenty minutes, and the placenta had been extracted about fifteen of that time. When I came to the bed-side, I was persuaded the patient was dead—no pulse could be felt, and for some time, there was no respiration; syncope had just taken place; I instantly commenced a brisk friction upon the abdomen—ordered brandy and water by the tea-spoonful to be given with frequency; warm applications to be made to the feet and legs—the curtains to be opened, and fresh air admitted from door and windows, and immediately sent for pills of the acetate of lead and opium. In the course, perhaps, of two minutes after the abdominal frictions were commenced, I had the satisfaction to feel the uterus beginning to harden under the hand, and every instant after, to acquire more and more firmness; in about ten minutes, it was found much diminished in size, and much more solid—in the act of puckering itself up, a large quantity of coagula and fluid blood were expelled from the vagina, which so alarmed the ignorant midwife, to whom was consigned the task of watching the discharge, that she declared the woman must die, if I did not desist from “rubbing the womb so violently;” but the cause of this poor creature’s alarm, was to me great comfort, and only induced me the more steadily to persevere in the plan of irritating the uterus.

The disposition to syncope was now much lessened, and the

pulse could, by a nice examination, be felt returning to the wrist—increasing in volume and force, as the faintness diminished; and in about half an hour more, the patient was considered out of immediate risk; to guard against a return of the flooding, as effectually as might be, I directed two grains of the acetate of lead, and a half grain of opium, to be given every half hour; the frictions upon the abdomen to be renewed, should the uterus be found to relax ever so little; and for this end, a very intelligent lady present, was instructed to perceive any change of this kind that might take place—the brandy and water to be given only *pro re nata*; and the most perfect rest was enjoined, though the position of the patient's body, was a very constrained one. I again saw my patient in about two hours, (having given orders to be instantly sent for, in case of any unfavourable change before I returned,) and found her situation, in every respect, improved; she had had no return of hæmorrhage; but was occasionally troubled with after pains—her faintness had gone off entirely; and her system was re-acting, with considerable force—her position was now altered, very much to her satisfaction; the brandy and water was forbidden, and she was permitted, instead of it, to take a few spoonfuls at a time of tapioca, seasoned with lemon-juice and sugar—the pills of the acetate of lead, were directed once in two hours. From this time, her recovery was as rapid as such a prodigious waste of blood would permit; milk was formed in sufficient quantity, after rather a longer period than usual; and the only subsequent inconvenience she experienced, was a headach, which almost invariably follows excessive uterine hæmorrhage; this was relieved by keeping the bowels freely open.

f. VI.—Where there is either a partial or complete separation of the Placenta, and where the body and fundus are in a state of inertia, while the neck enjoys its tonic powers.

1236. This is the most insidious situation in which the uterus can well be placed; and it is one in which inexperienced practitioners lose patients more frequently than any other, after the birth of the child. The neck of the uterus enjoying its powers, at a time that both fundus and body are in a state of

inertia, gives rise to such an accumulation of blood within the uterine cavity, as will destroy the patient, without its being suspected that such a discharge is going on—in this case, the hæmorrhage will be concealed; for a coagulum blocking up the os uteri, will prevent either fluid blood, or coagula, from issuing; and as there is no apparent flooding, the inexperienced accoucheur rests satisfied that all is going on well; nor is he roused always from this state of security, until the patient is in articulo mortis; or when, perhaps, all human aid would be unavailing.

1237. This case should warn the practitioner of limited experience, against a false estimate of his patient's security; and should teach him never to fail to ascertain the state of the uterus, by a careful examination, through the abdominal parietes, as already advised. If, upon placing his hand upon the abdomen, he find the uterus voluminous, but far from being hard; if upon inquiry he learn, that there is little or no discharge from the vagina; if he observe his patient become pale and faint, with a hurried breathing; if, upon touching the wrist, he find the pulse weak, frequent, or extinct; the skin cold and clammy, he may be pretty certain there is a concealed hæmorrhage;* he has now not a moment to spare, to rescue the woman from an impending fate—he must be firm, prompt, and self-collected; and instantly put in practice, every remedy that may promise relief.

1238. He should commence, by abdominal frictions; and, if he find the uterus becoming harder in consequence, he should persevere, until he thinks it has acquired a disposition to contract—should the hardening of the uterus not be attended with a discharge of coagula, &c. from the vagina, he must conclude, either that the neck of the uterus is too resisting to be overcome by the contraction of the body and fundus, without further aid; or that these are too feeble to overcome the resistance of the os uteri, though the latter may be compara-

* I say, "pretty certain there is a concealed hæmorrhage;" for I cannot say, he may be altogether certain: since, a rupture of the uterus may be attended with all these symptoms.

tively weak—in either case, he must attempt to give to the uterus an increase of power, by removing its contents.

1239. This must be conducted with much cautious coolness, that the remedy may not increase the evil—the frictions upon the abdomen must be intrusted to some proper assistant, and they should be kept up with persevering constancy, while the practitioner carefully inserts his hand into the vagina—should he find clots there, he should remove them, if they are not immediately forced off by the effort which will most probably be excited, by the introduction of the hand.

1240. This being done, he is to insinuate finger after finger into the os uteri, and gradually attempt its dilatation; should it be very resisting, the resistance must be cautiously overcome; and if this be properly conducted, it will perhaps, never offer such opposition, as to render any considerable force necessary—perseverance in a well directed manner, I am persuaded, will be all that is necessary.

1241. When the hand has gained possession of the cavity of the uterus, the wrist should be so pressed against the side of the neck of the uterus, as to make room for the escape of any coagula or fluid blood, that may be disposed to issue—by managing in this way, he may empty the uterus so gradually, as almost to insure its subsequent contraction, and this will be much aided by the external friction. He is now to search for the placenta;* if it be but partially detached, he must cautiously separate the remaining adhesions—when this is done with care, and under the precautions above suggested; he is to re-

* It may be well to observe, that, in every attempt to separate the placenta, we should, before we commence the operation, fix the uterus as firmly as it can well be done, by the external application of the unemployed hand upon the fundus—in fact, it should never be attempted without this precaution; as the operation is not only very difficult, if this be neglected, but is also very uncertain—the woman, if possible, should be placed upon her back, as I have directed for other purposes. It may also be proper to suggest another caution connected with this operation; which is, that we be certain that we have removed the whole of the placenta; except in those cases, where it is expedient to leave a portion to the natural efforts of the uterus, as in the too adherent placenta. It is, however, sometimes almost impossible to determine this, where the placenta is lobulated, as now and then happens. See Leroux, Baudelocque, &c.

move it by rotating the hand, now in possession of the placenta, against the internal surface of the uterus, until it manifest a disposition to contract; and then, and not till then, should the hand be withdrawn.

1242. Should the placenta be found entirely detached, it must be delivered with the same regard to uterine contraction. After the delivery of the placenta, pressure and friction should be continued upon the abdomen; nor must these be abandoned, until the contracted uterus give assurance of recovered energy.

1243. In addition to what has now been directed, the other remedies which have been suggested should be had recourse to—the sugar of lead, ergot, and cold applications, under the restrictions already proposed, should be tried—this case, and the one next to be considered, offer, perhaps, the best chances for the ergot; the brandy and water should not be omitted, if the woman be very faint, and much exhausted. The after-treatment will suggest itself; and after symptoms must be treated *pro re nata*.

SECT. XV.—*Of Flooding after the expulsion of the Placenta.*

1244. When the placenta has been expelled, and is followed by flooding, the mode of proceeding is so similar to the last, that it will require but a few words to make its management perfectly clear. In this kind of hæmorrhage, like the one we have just been considering, it is required that the uterus should contract before it can be possibly arrested; therefore it will be necessary to employ all the means already pointed out for this purpose; and here, as in the other cases, I rest my great dependence upon abdominal frictions, the acetate of lead, ergot, cold applications, &c.

1245. Should the concealed hæmorrhage take place, it must be treated much after the same manner as before the placenta is expelled,* (1218) that is, the hand must be introduced into

* This case is sometimes very suddenly fatal. I was once called by a midwife, to visit one of her patients; but upon my arrival, I found the woman dead. The midwife was much surprised, and could not account for her death; since, “the labour was natural and easy, and the placenta had come quickly away.” I told her

the uterus, and the coagula suffered gradually to escape, while the uterus is gently stimulated by the hand, passing cautiously over its surface; and when it is found to contract upon it, it may be slowly withdrawn; the after treatment must necessarily be the same. This case, generally speaking, is of much less difficult treatment, than where we have the placenta to contend with; and will always, so far as I have yet experienced, yield to the treatment proposed, provided a proper chance be given to their employment—it cannot be supposed they will be availing when the patient is in articulo mortis.

1246. It sometimes, however, happens, that a portion of the placenta may be left, either entirely, or partially attached to the uterus, which will give rise sooner or later to hæmorrhage—this may sometimes be immediately detected by the inspection of the placenta itself—at other times this will be found impossible; especially in those cases where we are under the necessity of bringing away this mass piecemeal—if this accident be discovered at once, it is best, I believe, to remove it; unless, it should be a portion that is too adherent to the uterus. Should this not, however, be discovered before the uterus has contracted firmly upon it, it will be much better to suffer it to remain, and trust to nature for its expulsion, than to run the risk of provoking a flooding; exciting a great deal of pain; or of producing inflammation. But should flooding attend, we must deliver the retained portion; and this can almost always be done, as the mouth of the uterus is generally found open or yielding, when hæmorrhage attends; but should it be found otherwise, it must be trusted to nature; the excess of discharge must be moderated by the tampon—if this be employed, it will be well to renew it every twelve hours; taking care to wash out the vagina before it is replaced, with the infusion of camomile tea, wine and water, &c.

1247. The retained portion of the placenta sometimes may

my suspicions of the case; and these were afterwards confirmed, by opening the body—the whole cavity of the uterus was filled with blood, and distended to nearly the size of one at the full period of gestation—the mouth of the uterus was found sufficiently closed to retain the blood discharged from the surface to which the placenta had been attached.

not, however, be suspected, for several days after delivery; but we have a right to conclude that it is retained, when there is frequent return of pains, and a discharge of coagulum after coagulum, from the vagina, followed by fluid blood upon each relaxation of the uterus. When the discharge of fluid blood happens in quick succession and in weakening quantities, we should immediately attend to the condition of the uterus; if it be found sufficiently yielding to admit the hand, it must be carefully introduced, and the portion detached, and withdrawn.* We may sometimes succeed in detaching it by insinuating a couple of fingers into the uterus, and moving them in a circular manner between it and the placenta, so as to loosen it, and then remove it either by hooking it with the finger; by the natural efforts of the uterus; or by the small crotchet recommended for the removal of the secundines in cases of early abortion. If neither the finger nor the crotchet succeed, we must trust to nature; taking care to keep the discharge in subjection by the tampon.

1248. The young practitioner is cautioned against treating this case with indifference; it is one not unfrequently attended with danger, and sometimes death has ensued very quickly, as La Motte and others assure us. Should he be doubtful of his own judgment in this case, let him, by all means, (as well as in every other case of danger,) request the advice of an older practitioner.

SECT. XVI.—*On the means for preventing Flooding.*

1249. Having at some length considered hæmorrhages which may accompany pregnancy, and follow delivery, let me say a few words upon the mode of preventing those which may succeed to labour; for I am of opinion that much may be done to this purpose. From what I have said it will be evident, that whatever interrupts the contraction of the uterus, or produces its relaxation after it has contracted, will occasion a flooding;

* Baudelocque tells us, he has known this kind of hæmorrhage show itself on the tenth day, and has been obliged to pass the hand into the uterus, to extract it. (System, Vol. II. p. 27.)

provided, there be a separation of a part, or of the whole of the placenta; it is equally evident, that whatever will insure this contraction, or contribute to it, will either prevent or diminish hæmorrhage from this part. Much, then, will depend upon the manner in which the last stage of labour is conducted, to insure the future contraction of the uterus.

1250. This subject has been treated by Dr. Denman, with much apparent interest; but his advice upon this point is not conformable to my own experience. I shall quote his own words. The Doctor says, "when I have been attending women who were prone to violent hæmorrhages after the birth of the child in former labours, I have made it a rule to keep them in an erect position, till the waters were discharged by the spontaneous breaking of the membranes, and the child was on the point of being born. By this method it appeared clearly to me, that the uterus acted more favourably, the placenta came away more naturally, and the quantity of blood lost was often much more diminished."*

1251. Now, I ask any one at all conversant with the economy of the uterus, during, and after labour, how an erect position, the sudden evacuation of the waters at the moment "the child was about to be born," can contribute to the only circumstance at all available in the case under consideration; namely, the permanent contraction of the uterus? In the first place, an erect position will always be attended with a quicker circulation than a recumbent one; and will permit the waters to escape with more suddenness and rapidity; consequently, the risk of atony must be increased. It is admitted upon all hands, and by Dr. D. himself in other places, that if the uterus be too suddenly emptied, there will be a risk of inertia, or, at least, of great irregularity of action; if this be so, how can the interest of the woman be improved by this practice?

1252. All writers upon midwifery declare, that the sudden emptying of the uterus, by the evacuation of the waters, and the rapid delivery of the child, are the most common causes of the atonic state of this organ; yet we are advised by Dr. D. to

* Introduction to Midwifery, Francis's ed. p. 494.

permit all this, with a view to the prevention of it! So far all theory is against it; and I will now appeal to my own experience, to prove it to be at least a doubtful practice.

1253. There was a period of my life at which I looked upon Dr. Denman to be the highest authority in midwifery; and, at that time, almost implicitly followed his instructions upon every point of practice; consequently, upon the subject in question, as being one of high importance; but in doing so, I was persuaded, from sufficient trials of the plan, that it not only did not answer the end for which it was proposed, but that it was decidedly mischievous; I of course abandoned it so soon as I was convinced of this truth, and substituted one almost diametrically opposite, with which, I have every reason to be well satisfied. As it was impossible to determine, *à priori*, which patient might be attacked with a flooding after delivery, it became necessary to follow some general rule with all, (where practicable,) by which the risk of this accident should be diminished.

1254. It therefore suggested itself, that whatever would insure, with most certainty, the tonic contraction of the uterus, would best guard the patient against the contingency of a flooding; and what appeared to me the most rational to insure this, was to take off the distention of this viscus as gradually as possible, by the early evacuation of the waters; to diminish the force of the circulation as much as was practicable, by making the woman preserve a horizontal posture when the pains became urgent; and to interdict stimuli of every kind, as wine or any other liquor, heat, and all unnecessary exertion.

1255. But let me make myself understood, when I say "the early evacuation of the waters." It is a fact notorious to every practitioner, that the membranes, if left entirely to the force of the uterus, would remain entire in many, and, perhaps, in most instances, until the child was about to be pushed through the os externum. If this plan were to be pursued, the uterus would be suddenly, instead of gradually emptied; and consequently, the risk attendant upon this (as agreed upon by all) would be incurred, and the most probable consequence would be a flooding. But if, instead of this, we rupture the membranes so soon

as the labour is active, and the os uteri sufficiently dilated or easily dilatable, we should give opportunity and time for the uterus to contract, before the child would be expelled, and thus guard against the evil we were apprehending. The uterus would, by this plan, diminish in size, in the exact proportion to the water displaced; it would apply itself to the whole surface of the child, the inequality of which would serve as an important and healthy stimulus, (all things being equal,) and prompt it to more certain contraction.

1256. Daily experience proves the justness of this reasoning and practice; for how rarely do we see a flooding follow those deliveries where the liquor amnii has been discharged even some hours previously! and what can produce the exemption from this accident, but the uterus having had sufficient time and opportunity to contract? It is true, that this alone may not always be sufficient to protect the woman against a hæmorrhage, but I am convinced, from many years of experience, it is the principal one.* The directions given for the delivery of the body of the child, after the head has escaped, and the abdominal frictions, must also be considered as matters of great moment, and should never be neglected, especially with women who are "prone to flood" after delivery.

* I have in several instances lately given the *secale cornutum*, a short time previously to the delivery of the child, with the happiest effect. It was given, as declared in the following case:—

Mrs. —, aged thirty-three years, in labour with her seventh child. One of her friends informed me, that she had always been liable to flood excessively, very soon after the expulsion of the placenta; and that with the last, (before the present case,) she had been nearly exhausted by the profuseness of the discharge. To prevent a recurrence of this, I prescribed the following mixture:—

R.	Pulv. <i>Secale Cornut.</i>	℥ss.
	Sacch. Alb.	℥ss.
	Aq. Cinnam. Sirup.	℥j.—M.

Of this, one-third was given every twenty minutes, about an hour before the child was expected to be born. The child was delivered in three quarters of an hour after the first dose. The placenta was soon detached, by the efforts of the uterus alone; and was found to be firmly contracted, immediately after. No flooding supervened—indeed, nothing but a moderate lochia followed.

CHAPTER XXX.

OF PUERPERAL CONVULSIONS.

1257. THIS truly frightful disease may attack a woman, perhaps, at any period of utero-gestation; but more frequently after the sixth month—the causes assigned for them have been various; some suppose they arise from some peculiar irritation of the uterine fibre from pregnancy; others consider them truly epileptic; while others regard them as nervous, or hysterical.

1258. This difference in views, necessarily leads to a difference in treatment—the first, makes safety to consist only in immediate delivery; the second, forbids the practice; while the third relies upon the use of opium. From what I have seen of this formidable complaint, I am persuaded, that there is no one cause constantly operating to produce puerperal convulsions; nor is there any one mode of cure applicable to all cases. To be successful in the management of this complaint, attention must be paid to the species of this disease, with which the woman may be attacked; I have, therefore, from a conviction that they do not all depend upon one and the same cause, divided them into, first, epileptic; second, apoplectic; and third, into the hysterical; each of which may attack under two distinct conditions of the uterus, and requiring from that circumstance a difference of management.

1259. Convulsions are all preceded by symptoms which denote their approach: in the epileptic species, the premonitory symptoms may exist a number of days before they show themselves; it is uniformly attended by a strong determination to the head, producing an engorgement of the vessels; headach, of greater or less intensity, ringing of the ears, a temporary loss of vision, giddiness, &c. are all present before the convulsive stage shows itself. From these symptoms being followed by convulsions, I have uniformly, when consulted upon such occasions, advised the immediate loss of blood, pretty smart purging, and an abstemious diet. By thus anticipating, I feel

assured I have in a number of instances prevented this terrible disease.

1260. Some are attacked by a severe pain in the stomach, which Dr. Denman considers as more fatal than when the head is the seat of pain; of this I can say nothing from my own experience. I may remark, that the longer the premonition, the milder the attack appears to be. In the most suddenly fatal case I ever saw, the patient suddenly cried out, "my head, my head!" convulsions instantly ensued, of which she died in a few hours.

1261. Pregnant women may be attacked with convulsions from causes not connected with gestation, or at least with labour—as the attack is not accompanied with any signs of it. These, if my observations be correct, are more unmanageable and fatal, than when pregnancy may be the remote cause. When pregnancy is instrumental to the production of convulsions, it is almost always at that period, when the uterine fibres are at their greatest stretch, and when the os uteri is disposed to dilate; or, where they suffer some peculiar irritation, over which we have no control, or from the contents of the uterus, which has the same effect; and such convulsions are almost always of the epileptic species.

1262. These convulsions, so far as my observations have extended, are never preceded by an aura, as in epilepsy, properly so called. But after the patient has suffered for a longer or shorter period the symptoms just named, (1259) she is suddenly seized with quickly repeated spasms—the face and eyes are twitched in all possible directions, with incredible quickness—the arms, legs, nay, the whole body, are violently agitated—one side is sometimes more affected than the other; the face becomes flushed, livid, black; the tongue is strongly thrust forward between the teeth, by which it is almost always severely wounded. Respiration at first is much hurried, but eventually becomes almost suspended; the carotids beat violently; the jugulars much distended; a peculiar sibilating noise is made by the mouth, not unlike what is termed "a cat spitting;" froth issues from the mouth, tinged with blood from the wounded tongue. The pulse in the beginning is full, frequent, and tense;

but quickly becomes rapid, small, and eventually almost imperceptible—the urine and fæces are sometimes discharged involuntarily; a cold clammy sweat bedews the whole body, and the fit begins now to subside.

1263. The convulsive motions gradually subside—they never cease suddenly and at once—their force and frequency abate; the pulse becomes more distinct and less frequent: the breathing is less hurried and less oppressive; the face loses part of its lividity; the muscles are agitated but at intervals, and their action resembles the commotion excited by passing a brisk electric shock through them, and eventually they sink into repose. The patient, however, remains for the most part insensible or comatose, with stertorous breathing or loud snoring; she cannot be roused by any exertion for some time, and if she recover for a moment her scattered senses, she is without the slightest recollection of what has passed. This truce is almost always of short duration; convulsion follows convulsion, without our being able to determine the period or cause of their return.

1264. When convulsions attack a woman absolutely in labour, or when this is about to take place, we may observe a pretty regular recurrence of the fits with the probable return of the pains—for though the patient be insensible to external occurrences, she appears to manifest, by her moans and the suspension of respiration, her sensibility to uterine contraction. This appears to me to be so manifest and decided, that I think I could tell what is going on at the mouth of the uterus, without an examination per vaginam.

1265. The face becomes very much swoln, especially the lips and eye-lids; indeed the whole body seems to partake in a greater or less degree of this intumescence, but not so conspicuously as the face. So completely is the countenance changed, or rather disfigured, that oftentimes it could not be recognised by the dearest or most intimate friend; nor does this swelling immediately subside with the convulsions which caused it; it frequently remains many days after they have ceased. Dimness of sight, nay, blindness for weeks, are not unfrequent consequences of this disease.

1266. In the apoplectic species we have nearly all the pre-

monitory symptoms enumerated above, (1259) but of much shorter duration.* It may, like the epileptic, attack at any period of gestation, but does not almost necessarily produce or be accompanied by labour. From this, it would seem it may be brought on by causes independent of pregnancy, though this process may with propriety be regarded as an exciting cause; for it sometimes takes place when this process is at its height, but is no otherwise accessory to this end, than increasing by its efforts the determination of blood to the head.

* In a case of this species, which fell under my notice within a few days, I thought it was not accompanied by either as much frothing from the mouth, or with as much sibilation, as in the epileptic. Mrs. —, aged seventeen, pregnant with her first child, complained, on the 20th of July, 1824, of slight pains resembling labour, and a generally diffused pain; but severest in her limbs; so much so, in these parts, as to render her almost incapable of moving them; some fever, though slight. Dr. Shaw, under whose care she was, ordered her to be bled and purged. 29th, 4 o'clock A. M., was attacked with labour pains; at first slight, but had much increased at the time the doctor was called. Upon examination, the os uteri was found a little opened; and at 8 o'clock A. M., she was attacked with strong convulsions, which were repeated about every twenty minutes. She was bled about twenty ounces; convulsions continued to recur. At ten o'clock the same morning, the os uteri was pretty well dilated; and from a belief that convulsions were at least maintained by uterine distention and irritation, Dr. Shaw ruptured the membranes, with a hope of tranquillizing them.

At this time, I was called in. I found the patient totally insensible to any external impressions; nor had she discovered any sensibility after the second fit; breathing with considerable difficulty, and snoring pretty loud. The pulse was full, frequent, and hard, and the skin hot. Upon examining per vaginam, the head of the child was found at the lower strait, presenting with the posterior fontanelle behind the left foramen ovale, and entirely within the uterus—up to this time, about thirty-five ounces of blood were drawn. She was attacked with a fit, soon after examination. There was something remarkable in the character of her convulsions—her eyes were but little agitated; the pupils much contracted; her face was but little suffused; there was less frothing at the mouth, and less sibilation, than is usual.

I applied the forceps, and delivered her in a few minutes, without the slightest difficulty. She remained, after this, for two hours without a fit: at the expiration of this time, they recurred about every half hour, until 9 o'clock P. M., when they ceased; but without any amendment in the condition of the patient—she appeared completely apoplectic. She continued much in this situation, until 6 o'clock in the evening of the 31st, at which time she died. Leave could not be obtained to inspect the body. She did not complain of headach until the 29th, and then but a short time before she became convulsed. She lost, altogether, eighty-two ounces of blood; was freely purged, and once cupped.

1267. In the hysterical species, we have not the same train or continuance of the premonitory symptoms. If headach attend, it is neither so severe nor so permanent; there is a ringing in the ears, globus hystericus, and palpitation of the heart. The face is much less convulsed—less vacillation of the eyes, while the larger muscles of the body are much more violently agitated; the patient, at times, is very obstreperous: and the muscles on the posterior part of the body, are almost always violently contracted; so much so, that the body shall describe an arch backward. I have considered this last circumstance, as strongly marking this species of convulsion. The face is much less flushed, than in either of the two other species; but never pale, agreeably to my observations, as some have remarked.

1268. There is no frothing at the mouth; and the peculiar sibilating noise which so strongly characterizes the first, and perhaps the second species, is entirely wanting in this—the patient, after the fit, can, for the most part, be roused to attention, or will frequently become coherent, so soon as she recovers from the fatigue or exhaustion occasioned by her violent struggles; and, though she may lie apparently stupid, she will, nevertheless, sometimes talk or indistinctly mutter. After the convulsion has passed over, she will often open her eyes, and vacantly look about; and then, as if suddenly seized by a sense of shame, will sink lower in the bed, and attempt to hide her head under the clothes. The pulse is much less disturbed, nor does it ever acquire that extreme velocity and tenuity it does in the other two species, for respiration is never so much in danger of being suspended.

1269. This species attacks women of delicate and nervous habits; the recovery from it, is always more rapid, and never, so far as I have yet observed, leaves any imperfection of vision.

1270. As nothing is so satisfactory, as regards the application of remedies for any disease, as the detail of cases, in which their routine is exhibited, I shall make no apology for inserting the following from my "Essay on Puerperal Convulsions."—See "Essays upon various Subjects connected with Midwifery."

Case First.

Mrs. —, a delicate small woman, twenty-three years of age, pregnant with her first child, was attacked, on the 16th of November, 1809, at 8 o'clock, A. M. with epileptic convulsions. I saw her in an hour after the attack—previously to my seeing her, she had had three fits, and a fourth was coming on just as I entered the door. Three or four days previously to the attack, she complained of a violent jaw or tooth-ache, which was looked upon as rheumatic, and no attention was paid to it. On the 15th, that is, the day before her illness, she was seized with an extremely acute headach; and, during the night, and just before the onset of the fits, she was extremely sick at stomach, and vomited a large quantity of thick glairy mucus; immediately after this, she said she could not see, and was, in a few minutes more, seized with convulsions. She laboured under the appearances as the ultimate symptoms, in a violent degree. I instantly bled her from a large orifice in the arm \bar{z} xxxv, by measure—this, as I have just said, was at 9 o'clock, A. M. Eleven o'clock, had two fits during my absence, and was now in the third—bled \bar{z} xii.—Ordered a strong infusion of senna as an enema—os tincæ a little opened, but rigid. One o'clock, P. M., had two fits since last visit—injection operated—pulse still active—face flushed—very restless and uneasy, arising, as I believe, from the pains in the uterus—os tincæ rather more dilated—to be bled by cups \bar{z} x. Four o'clock, P. M., one fit; cups drew well; senna operated again two or three times; very comatose—ordered cold applications to the head by means of a large bladder, partly filled with water and some ice—blisters to the legs. Seven o'clock, P. M., no fit since last visit—pulse very active—very restless, constantly making efforts to get out of bed*—os tincæ not much more dilated; took \bar{z} x blood; senna continued to operate. Ten o'clock, P. M., no fit since last visit; pulse still too active; took \bar{z} x more of blood; cold applications. Seventeenth, Mr. Purnell, now Dr. Purnell, one of my pupils, staid all night with the patient. He said she had one fit, after which he took \bar{z} x ounces of blood; senna con-

* I have considered this as a pretty certain sign of labour going on.

tinued to operate. At 10 o'clock, A. M., I saw her; stupor much less; recognised her friends, and asked some questions; she did not see well, a slight squinting was observable. Seven o'clock, P. M., better, pulse less active; had had three stools since the morning visit. Eighteenth, Mr. de la Motha, now Dr. de la Motha, another of my pupils, staid with the patient last night. She passed a good night, was tranquil and rational; no return of fits during the night; two stools. Saw her at 10 o'clock, A. M., skin dry and hot, face a little swelled, but perfectly collected. Eight o'clock, P. M., face more swollen, and a little flushed; much headach; pulse very active; great thirst; took $\frac{3}{4}$ x of blood, much relieved by it; pulse softened, and diminished in frequency; cold applications continued. Nineteenth, passed a good night, free from fever and pain; no return of convulsions; bowels rather tardy; ordered senna tea. Continued much in this condition until 28th, twelve days from the first attack; this morning was seized with brisk labour-pains, and was soon delivered of a dead child. From the degree of putridity, it is presumable that the child died early in or before the attack.

On this case it may be proper to remark: 1st. That the child had not been felt to move for several days before the patient was taken ill—but this is by no means a certain proof of its death. 2d. Signs of labour were manifested on the first day of the illness, but were evidently suspended, or at least not progressive, after the second. I occasionally examined for several days, but found the os tincæ so rigid, as to preclude the idea of manual assistance; it was therefore not attempted. 3d. Had manual aid been resorted to, I have no hesitation in believing it would have been extremely injurious. 4th. That the convulsions were controlled ten days before delivery took place, although from the state of the uterus it was evident it would sooner or later take place. 5th. That the attack commenced between the seventh and eighth months of pregnancy. This lady's next pregnancy was not attended by this untoward accident; strict attention was paid to her during the whole period of gestation. She was kept on a milk and vegetable diet—her bowels were kept open. She was occasionally blooded, espe-

cially when she complained of headach—she took, for several months, three or four doses daily of the tincture of fox-glove, with, I think, evident advantage, and was at the proper time happily delivered of a fine child. In her third pregnancy she attended much less to herself, and was not under medical restraint, in consequence of which she was again attacked by convulsions, and was held very much as above related, with the exception that labour was much more rapid. Her fourth pregnancy was again fortunate, as she again submitted to medical direction. Her fifth pregnancy I have understood was again unfortunate, and attended with convulsions like two of the former—I did not see her in this last pregnancy, having been absent in the country when it happened.

Case Second.

Mrs. —, aged twenty-six years, pregnant of her first child—a large plethoric robust woman, was, on the 9th of September, 1811, at about 5 o'clock, A. M., taken with labour-pains, and sent for her midwife; before the midwife arrived she was seized with terrible convulsions, and I was immediately sent for—the fits were frequently repeated, and were from their extreme violence very threatening—her face was immediately swelled—her eyes fairly protruded from their sockets—her tongue terribly wounded, &c. I instantly bled her from the jugular vein more than three pints—examined her, and found labour approaching—ordered a brisk injection—saw her two hours after—had had several severe fits—pulse extremely active—labour advancing—bled her twenty ounces—injection repeated—a stream of cold water was poured on her head during the interval of the fits—11 o'clock, A. M., fits not so severe, but pretty frequent—pulse still very active—took a quart of blood—apparently much relieved—lay quieter—1 o'clock, P. M., had had two or three fits—very restless—mourned every few minutes, desirous of getting from the bed—bled her $\bar{x}xii$ —examined, and found the head low in the pelvis, and delivered with the forceps—she had two or three fits after delivery; and remained insensible to every thing for forty-eight hours. She now began to show some signs of returning sensibility—was bled

twice in that interval—cold was applied to the head, and the legs blistered—she was purged freely by senna tea. After this, she gradually recovered her senses. She was left completely blind for two weeks; she then began to see imperfectly, but was six weeks before she could distinctly discern objects. It may not be amiss to observe, the child was living.

This case is remarkable, on account of the severity of the disease, and the large quantity of blood that was drawn in the short period of a few hours. She lost, in the first six or seven hours of her illness, one hundred and twenty ounces of blood, and about one hundred and forty altogether: a quantity that might, at first sight, startle the timid or inexperienced practitioner; but when he reflects, that here was a patient labouring under one of the most ferocious complaints in the whole catalogue of human diseases; the brain threatened with immediate destruction; the patient of prodigiously full habit; one who not only neglected the kindly warnings of headach, giddiness, and occasionally loss of vision, by not having recourse to bleeding—but, contrary to the advice of her midwife, fed freely, and remained long costive—what then could avert the threatening consequence of this disease, but the most prompt and the most subduing remedies? Had not the bleeding been carried to the extent it was, I really believe it would have been unavailing. Even as it was, it did not prevent temporary blindness. Her second pregnancy was not attended with any untoward circumstance.

Case Third.

Mrs. —, Nov. 10th, 1797—pregnant with her second child, and in the eighth month, was seized while at the ironing-table with the vertigo.*—She fell, and was immediately attacked with convulsions. I was living near, and was instantly sent for—I found her labouring under the general symptoms of this disease—I bled her from both arms at once, and took from each arm nearly, if not quite, a quart of blood. She appeared for a short

* She had complained all the morning of intense headach, and several times said she could not see—she was advised to leave off work, but would not

time much relieved; that is, the convulsions were abated—I examined her, but found no change in the *os tincæ*. An injection was ordered, which operated well—about an hour after the bleeding, her pulse rose very much; her breathing was more laborious and stertorous, and some convulsive twitchings played over the whole body.—She was entirely insensible to all external impressions—the pupils of the eyes were much dilated; fearing a violent repetition of the convulsions, I again tied up the arms, and took about twenty-five ounces more of blood—this seemed again to moderate the symptoms—no change in the *os tincæ*. 4 o'clock, P. M., three hours after the attack, the convulsions were renewed with considerable violence.—She was let blood to the amount of twenty ounces—cold water was poured on the head—she was again more tranquil, but not less comatose, though the breathing was less loud; she had a copious black stool. 6 o'clock, P. M., had had several fits, but not as violent as at first—pulse still too active; took eighteen or twenty ounces of blood from the arm—as the pulse was now considerably reduced, applied a pair of blisters to the legs, and sinapisms to the feet. 10 o'clock, no convulsions since last visit, breathing freer, but loud—swallowed a little water with some difficulty—passed no water since the attack; introduced the catheter, and drew off a large quantity—had two stools—made an effort to vomit. 11th, 6 o'clock, A. M., was called to her suddenly, as her breathing was becoming more laborious and loud, and face more flushed, with some convulsive agitations; pulse rather too active; had ten ounces of blood by cups, and a large blister placed between the shoulders. From this time, there was no return of convulsions.—She gradually recovered her recollection, but remained until some time after her delivery (which took place at the regular time, and with a living child) with imperfect vision, especially in one eye. She was, for many years after this, subject to violent headaches, which were relieved constantly by bleeding.—She had several children after this attack, without convulsions.

Case Fourth.

Mrs. —, October 1, 1803, had been in labour several hours; she had every appearance of being happily delivered of the fifth child, when, during a strong pain, she instantly cried out, "my head, my head!" and immediately fell into convulsions. She was under the care of another physician, to whose aid I was instantly called by his own desire—the convulsions were strong, and very frequently repeated—she was largely bled; on examination, the child was found to be far advanced, and was speedily delivered by the aid of the forceps—the convulsions, however, continued in spite of every exertion to relieve them, and she died in about three or four hours from the attack. Leave was obtained to open the body; the longitudinal sinus of the dura mater contained (by estimate) between two and three ounces of blood; the posterior left ventricle was filled with a bloody serum—the other ventricles appeared sound, as did the other parts of the brain—no other part was examined.

Case Fifth.

Mrs. —, aged 24, pregnant for the first time, was taken in labour on 10th March, 1797—her labour proceeded regularly, and the child's head was at the inferior strait, and every rational expectation was entertained of a speedy delivery, when she suddenly cried out with pain in her head, and declared she could see no one in the room; these symptoms had continued but a few minutes, when she was seized with convulsions—she was under the care of the late Dr. Shippen, who requested that I might be sent for, and desired I would bring my forceps with me. I found the patient in a strong fit, with her face literally as black as a negro—it was agreed she should be bled extensively—this was done from the left jugular vein, to the amount of nearly two quarts; it had an immediate effect in tranquillizing her. I now examined her, and found the head low in the pelvis; I applied the forceps, and delivered her of a dead child. Upon examination, it was found there was another child; the uterus soon discovered a disposition to act; but fearing injury from delay, I immediately delivered by the

feet, which were the presenting parts; the child was healthy, and did well; the mother had no return of fits, and she rapidly recovered her usual health, excepting that of her eye-sight, which did not return so as to discern objects for several days; and her vision was very feeble for several weeks.

Case Sixth.

I was called on the 10th of July, 1811, to Mrs. —, who was, at the moment of my arrival, and had been for a considerable time before, in a strong convulsive paroxysm. I found several men diligently employed in holding her, and opposing her motions; she was raised in the middle like an arch, while her feet and head nearly met. She was between seven and eight months pregnant, and subject to hysterical affections.—She was thrown into this, by some altercation with one of her neighbours—cold water was dashed in her face, and she was blooded to the amount of sixteen ounces. The spasms began to give way soon after, and in the course of about fifteen minutes ceased. She sighed very deeply, and struck her arms very forcibly against the bed, and in a few minutes more, inquired what all these men were doing with her. I gave her fifty drops of laudanum, and two tea-spoonsfull of the tincture of assafœtida in some sweetened water, and she had no return of the fit.—She went her full time without a repetition of them, and was safely delivered of a healthy child.

I shall now subjoin two other cases, to show of how much consequence a proper distinction is, in the treatment of puerperal convulsions.

Case Seventh.

I was called on the 16th of April, 1810, to Mrs. —, said to be in strong convulsions. I was from home when the messenger arrived, but went so soon as it was in my power. When I went into the sick chamber, I found Dr. — with the patient. He told me “Mrs. — had been attacked about two hours before with convulsions, and was in the ninth month of pregnancy—that, previously to the attack of the fits, she had complained of violent pain in the forehead, which she told her husband she

could cover with her finger. She had this pain several days, but it was much more intense this morning, and was attended with a sensation, as if a piece of black gauze was before her face. She was stopping for some time over a trunk, in which she was arranging some articles, when she was seized, and fell on the floor in strong convulsions."

She was now lying senseless and without motion on the bed; she breathed very heavily, and snored loudly—her face much swoln and of a purple hue—the pulse frequent and small, and the extremities cold. I inquired what had been done, and was informed by Dr. — he had given her, twice, sixty drops of laudanum at a time, and that since the last dose she had had no fit, and was, in his opinion, very much better, requiring nothing but sleep to restore her.—I told him very plainly, that I thought he had mistaken the patient's case, and had, in my opinion, sealed her fate by the use of the laudanum.—He appeared alarmed, but not altogether convinced.—We did every thing that we thought might be useful; but all exertion was unavailing, and the patient died in about three hours.—I could not procure leave to open the body.

Case Eighth.

About three months after the above event had taken place, viz. on the 20th of July, 1810, the same gentleman was called to Mrs. —, labouring under convulsions. I was sent for at his request. Before I arrived, he had bled the patient very freely (40 ounces,) by which she was considerably relieved—she was near her full time of gestation. From her peculiar motions and breathing, I suspected labour had commenced—she was examined, and the os uteri was dilated to about the size of a dollar. It was, however, pretty rigid. The convulsions returned with considerable force; the patient was again bled about thirty ounces; a stimulating injection was thrown up the rectum, which operated freely; the mouth of the uterus was now well dilated; I turned, and delivered a living child. Mrs. — had one fit after delivery, but it was not severe. She recovered her senses and feelings on the second day after delivery, and no other inconvenience was experienced, except some dimness of

sight, and slight headach. Several days before the attack of convulsions, she had complained of the headach, and that particular sensation of a nail being driven into the head, and also of an occasional loss of sight.

The two cases just related, form a happy contrast in the mode of treatment; the first case proving so unfortunate, made a strong impression on the mind of Dr. —, who very properly profited by it in the second case. He candidly confessed they were as similar as any two cases of disease could be, and declared himself much shocked at the reflections which the unfortunate case gave rise to.

In every case of convulsions, it is but too common for bystanders to oppose, by strength, the contractions of the agitated muscles. This practice cannot be too severely reprehended; for it is both injurious and unnecessary; it subjects the patient to severe muscular pains, which last for very many days after the fits subside. All that should be done in such a case is, to prevent the patient doing herself mischief, or prevent her throwing herself from the bed; a very moderate exertion is sufficient for this purpose, therefore violence should never be employed.

CHAPTER XXXI.

OF THE ASSISTED DELIVERY OF THE PLACENTA.

1271. IT is almost exclusively, by the tonic contraction, that the placenta is detached from the uterine surface, that it may be expelled. This takes place at various periods, as the tonic power of the uterus may be in greater or less perfection, or as the connecting medium may be more or less dense—it will, therefore, be found, that the placenta may be cast off immediately after the expulsion of the child, or it may require some time to effect this end, without considering it to be a morbid adhesion of this mass.

1272. It is desirable, at all times, that the placenta be expelled pretty quickly after the child; and if it do not take place in proper time spontaneously, it is proper that we should give such assistance as will facilitate its exit, without the introduction of the hand. There has been much diversity of opinion, what period or interval, constituted "the proper time," for the extrusion of the placenta--some fixing a longer, and others a shorter term, much to the embarrassment of the young practitioner--but this point, I conceive, is easily settled, by taking the indications from the condition of the uterus itself, rather than from elapsed minutes, or hours.

1273. I have always set my face against "time" being made the criterion for action, in midwifery; and my aversion is by no means abated, when it is attempted to form a rule from it, for the delivery of the placenta; for the same objections must obtain here, as in the cases I have already declared it should not govern in. I have already stated (1271) by what power the separation of the placenta is effected; and that this would necessarily require a longer or shorter interval, as this agent may be more or less active. It will follow, then, that the expulsion of this mass may be either very prompt, (1271) or be rather tardy; I have already pointed out the duty of the accoucheur in the first instance, and the mode by which he is to execute this duty; (507) I shall, therefore, here, only consider what is to be done in the latter.

1274. I have stated in effect, (1271) two principal causes for the tardy separation of the placenta: namely, 1st. A diminution of the tonic power; and, 2d. Too great a firmness in the connecting medium of this mass with the uterus; each of which requires a little difference in management. The first of these may be known: 1st, by the uterus being rather larger and softer than it should be, a short time after delivery; 2d, by no portion of this mass being within reach of the finger, when introduced into the vagina; 3d, by there being no return of the alternate contractions of the uterus; and, 4th, when a force is applied to the cord, it gives the idea that the placenta is descending; but this is known not to be the case, so soon as we cease to draw upon the cord, as it then instantly mounts again into the pelvis.

SECT. I.—1. *Mode of acting in Retention from want of Tonic Power.*

1275. When this state of things presents itself, all attempts to deliver the placenta must be forborne, until we have, by properly instituted frictions over the region of the uterus, obliged it to contract, and harden itself under the hand; and at the same time retire lower into the pelvis—when these alterations show themselves, we almost always find they will be accompanied by pain; and, if we now co-operate in a proper manner, we shall find the placenta to arrive within reach of the finger, and announce its separation by a small discharge of fluid blood, or coagula, or both, and fall into the vagina, from whence it may be extracted, as has been directed. (507)

SECT. II.—2. *Retention from too firm adherence.*

1276. In the second case, we shall find the uterus reduced in size; firm, and pretty well sunk into the pelvic cavity; and may be even attended with pain, without bringing the placenta within reach of the finger, and if we draw upon the cord as in the other case, there is little or no retraction after we intermit the force.

1277. This case requires, for the separation of the after-birth, not only a firmer contraction of the uterus, but a longer continuance of it; as well as a particular application of force to the placenta itself, by means of the cord. Force, to be successfully applied for the separation of the placenta, must be directed in such a manner, as to act perpendicularly to its surface; or its influence will be destroyed—to effect this, we must first ascertain the part of the uterus to which this mass adheres. This is to be done by observing the part of the pelvis to which the funis seems inclined; as this will point out the portion of the uterus to which the placenta is adherent—thus, if the cord descend behind the symphysis pubis, the placenta will be attached to the anterior part of the uterus; if before the projection of the sacrum, it will be found at the posterior part of the uterus; if to either side, the placenta will be to the side on which the cord is found.

a. Mode of acting in this Case.

1278. Having ascertained the location of the placenta, we must so arrange a couple of fingers within the vagina, that drawing the cord horizontally, will act in the desired direction; that is, if the placenta be attached to the anterior portion of the uterus, we place the cord behind the fingers, and press it back toward the projection of the sacrum, while we draw the cord with the other hand; if to the posterior portion, we place the cord before the fingers, and carry it as high as we can well reach, toward the superior strait, and then draw with the other hand; if placed at the lateral portions, we must introduce the fingers of either the right or left hand, as it may be the right or left side of the uterus to which the placenta is attached, and then place them in such a manner as that the horizontal drawing will act in a proper direction—if the placenta be at the left side, we must introduce the fingers of the right hand, and vice versa. By thus acting, we may succeed in bringing down a placenta, which, without it, might require the introduction of the hand.

1279. In this situation of the placenta, we are almost certain to have the co-operation of the alternate contractions of the uterus; and it is desirable that we take advantage of them, by making gentle exertions by the cord at the same time; if no pain come on, we should solicit the farther contraction of the uterus, by frictions and moderate pressure upon it, while we gently and steadily pull at the cord. We should now and then ascertain whether the placenta is descending; this is best done by slacking the tractive force; and then observe whether the cord remounts, or whether it remains stationary. If it ascend, we may be certain that the placenta is either not detached, or that the uterus is not aiding in its expulsion—in such case, we should be very careful that the degree of force applied to the cord, be not sufficient to destroy its union with the placenta; and that we do not urge its deliverance too importunately.

1280. If we find the cord not to remount, or if it remount but very little after we have ceased to draw, we may be assured the placenta is descending, and will be within reach of the

finger, by occupying the vagina; from whence it may easily be extracted.

1281. It very rarely happens that the introduction of the hand is necessary to deliver the placenta, in the situations I have just indicated—a little method and address, are all that are required to overcome existing difficulties; and, perhaps, there is no situation of it in which it has been dragged from the uterus so often, and so wantonly; because a little resistance was offered by the causes just stated. It would seem to be a sufficient reason with every inexperienced practitioner, to introduce his hand for the delivery of the placenta, whenever it does not precipitate itself into the vagina immediately after the birth of the child; or does not instantly obey the force that is applied to it; however ill-directed, or inopportune, that attempt may be.

1282. Or if he be timid, and obey a direction but too common in books upon this subject, that a certain period of time must elapse before any attempt be made to deliver the placenta, he may let the proper moment elapse for the successful application of well-directed force, and thus convert a case of great simplicity, into one which will require the aid of art.

1283. I say, that the time for the interference of the accoucheur for the delivery of the placenta, should always be regulated by the condition of the uterus itself; and that, that condition is, whenever it is firmly contracted—in this I believe I can never be mistaken; or, at least, I have uniformly acted upon this principle; and so far, I think I am safe in saying, I have not had cause to believe it wrong. I acknowledge that some address is required, for the successful delivery of this mass; but as this is easily acquired by a proper attention to the laws of the uterus at this time, I should hold that man in some measure accountable, if he produced mischief by an improper, or ill-directed manœuvre. Time, simply considered, can never form a safe rule for the delivery of the placenta; the degree of contraction of the uterus alone can insure success, or point out the proper moment to operate.

1284. I am decidedly of opinion, that the necessity for artificial delivery of the placenta is often created by obeying a

rule taken from time, let the period be longer or shorter; for time in itself, can neither produce the conditions required, nor command them if they be absent. For the uterus may be disposed to throw off the placenta, and would, if properly aided, long before the fixed period may arrive; or it may be in a state of such feebleness at that moment, as to render it highly dangerous to attempt it—hence, on the one hand, an injury may be done to the uterus by the manual delivery of the placenta, by the resistance which it now offers to the attempt; or the woman be exposed to a severe and perhaps a fatal hæmorrhage, by our acting at the moment limited; it is, therefore, improper to permit the uterus to contract so as to enclose this mass, and require force to open it, by improperly delaying the moment to act; or by inattention to its state of imperfect contraction, to induce a flooding, by acting, because, a specified time has elapsed.

1285. Should a portion of the placenta be separated, and a flooding accompany these conditions of the placenta, it must be treated as directed for this case in the chapter upon uterine hæmorrhage. (1207, &c.)

SECT. III.—3. *Of the Delivery of the Encysted Placenta.*

1286. In consequence of the contraction of a portion of the body of the uterus, before the placenta is delivered, it is sometimes confined in a distinct apartment as it were, of this organ; and this, agreeably to my own experience, is always at the fundus. The mechanism of this accident is easily understood, if we recollect the strong disposition the body, and especially its lower part, has to contract, or narrow itself, when the distending cause is removed; and especially, while the placenta remains undelivered.

1287. Some have thought this contraction could take place only when the placenta was attached to the side of the uterus; and others, when it adhered to the fundus; of this last opinion was Baudelocque; and it entirely comports with my own experience of this condition of the uterus—indeed I might say limited experience; for such it truly is; as I have very rarely

met with it; and never, so far as my recollection may be depended upon, when I have had the entire management of the case. Dr. Douglass, of Dublin, has considered this condition of the uterus altogether artificial; or arising from some irritation near the mouth of this organ; either by acting upon the cord, or by the introduction of the hand.

1288. He says, "the exciting cause of the uterus assuming the hour-glass form, is irritation, produced either in the vagina, by injudicious pulling at the umbilical cord; or in the cervix uteri, by the accoucheur's hand, searching there in vain for the placenta."

1289. "That the proximate cause is a spasmodic constriction of the muscular fibres of the uterus at the lower verge (not the centre) of that section termed its body, and just where it ceases to be thickly muscular."

1290. "Thence I conclude," says the doctor, "that this hour-glass contraction is not produced by any principle of action inherent in the uterus itself; and that whenever it does occur, it is caused by mismanagement."

1291. "Therefore, in order to avoid such occurrences, the practitioner should always refrain from exciting unnecessary irritation."

1292. "And, in those cases of unavoidable retention of the placenta, wherein it may be necessary for the accoucheur materially to interfere, he should, having cautiously inserted it within the vagina, push his hand briskly up to the very fundus of the uterus. And in this operation, he should direct the hand forward towards the umbilicus." This case is rarely attended by hæmorrhage.

1293. This case may be known, by the fundus of the uterus reaching higher than common; by its being smaller in its transverse direction, as can be detected through the abdominal parietes; by an elastic feel of the cord; by no pain attending; by the placenta not being within reach of the finger; upon the introduction of the hand, the cord is found to pass through an aperture of greater or less size, and the placenta felt to lie within the cavity formed by this contraction.

a. Mode of Operating in this Case.

1294. In the hour-glass contraction of the uterus, it becomes always a matter of necessity to operate; and this should be undertaken so soon as this situation is ascertained; as I believe no advantage has ever been derived from waiting. It is in vain the action of the uterus is solicited; or that force, however well directed, be applied to the cord; nothing but the introduction of the hand, and that made to pass the stricture, can relieve the placenta from its confinement.

1295. The woman should be placed upon her back, as directed for turning, (702) or the application of the forceps; (724) the hand must be cautiously introduced into the vagina, and forwarded agreeably to the direction of the cord; taken always for a guide. This will be found passing through an aperture of uncertain size; sometimes larger, sometimes smaller; into which the fingers, one after the other, must be introduced, and its dilatation gradually effected, until the whole hand is enabled to pass the stricture. When the hand has possession of the chamber which contains the placenta, this mass must be separated carefully if it be adherent,* or if loose, it must be seized with sufficient firmness to secure its following with the hand, when this is withdrawn.

1296. Some little management is required in withdrawing the placenta, or rather in the mode of seizing of it—it must not be grasped by the whole hand, and kept in it by contracting the fingers, or its bulk, with that of the hand, will exceed the opening through which it has to pass. This is not an unusual predicament; and has sometimes been attempted to be overcome by force, to the discomfiture of the operator, and to the serious injury of the patient.

1297. During the introduction of the hand into the uterus, and especially, while contending with the stricture, the uterus must be fixed firmly by the other hand being pressed upon its

* Dr. Douglass says, it is always found adherent, or rather that it is never found detached. (Observations on the Hour-Glass Contraction of the Uterus, p. 10.) Dr. Ramsbottom says, that it is generally found detached, (Practical Observations, Am. ed. p. 144.) and this comports with my own observations.

fundus, until possession is taken of the placenta, and the hand is about to be withdrawn. After the after-birth is delivered, I have thought it best to re-enter the uterus to the very fundus, so as to be certain that neither a portion of the placenta, nor coagula are left behind.

1298. This operation is always to be slowly and cautiously performed, as the woman may be much endangered by a contrary practice—she may, by rudeness and want of tact, be liable to subsequent inflammation of the uterus, or its immediate rupture. It is to the patient always an operation of severe suffering, however well conducted, unless the stricture resists very moderately; therefore, to add to it, by rudeness or maladroitness, is truly cruel.

SECT. IV.—4. *On the enclosed and partially protruded Placenta.*

1299. It sometimes happens that the placenta is confined in the uterine cavity, though detached from its surface, in consequence of the sudden contraction of the mouth of the uterus. It would perhaps be difficult to assign the reason of this disposition in the mouth of the uterus to close, before the placenta is expelled—it may arise from some peculiar stimulus, or from some preternatural irritability of this portion of the uterus, over neither of which, have we any control.

1300. This situation of the uterus and placenta may be known, by the latter being unusually long detained, when, from the hardness and well contracted condition of the former, we should not have anticipated any such delay; by the force applied to the cord, not making the placenta descend; by an absence of hæmorrhage; nay, almost of discharge; by the contracted condition of the os uteri; by the placenta being felt, when the finger is passed through it; and by the absence of pains.

1301. It would be in vain to attempt the delivery of the placenta, by any exertion made upon the cord, though this almost always is resorted to; and as the whole of the uterus will sink lower into the pelvis by this effort, the inexperienced practi-

tioner imagines it to be the placenta descending—he continues his traction under this illusion, and thinking a little more force will overcome the difficulty, he multiplies it; the cord is ruptured, and his difficulties increased—he now becomes alarmed; and the panic spreads to the patient and her friends; every thing is thrown into confusion; a consultation is demanded, and a rival practitioner robs him of the little reputation he may have acquired, and thus interrupts his progress in business. Or, fearing the consequences a discovery of this accident might produce, he disingenuously conceals it; and attempts, without method, the delivery of the imprisoned placenta, to the immediate torture, and the subsequent injury, of his patient—not knowing exactly what causes the delay, or what the nature of the difficulties is which oppose him, after excruciating the poor woman almost to death, by unavailing efforts, he in a paroxysm of mental anguish, abandons her; or declares the case must be left to nature.

1302. The mode of proceeding in such cases is: 1st, to try to recall the contractions of the body and fundus by the exhibition of the ergot in common doses; should this not succeed within an hour, the uterus must be gently entered, by slowly dilating the os uteri, and the placenta removed—this, if carefully and methodically attempted, is not so difficult as might at first be imagined. The woman should be placed as directed for turning, (702) and during the passage of the hand through the os uteri, the uterus should be firmly supported as suggested. (1297)

1303. I have ventured to suggest the exhibition of the ergot in this case rather from analogy, than experience—as in a case of retained placenta, after a premature labour of the seventh month, and another under similar circumstances at the sixth month, I happily procured the expulsion of these masses, by this remedy.

1304. As a general rule, I am of opinion, that the sooner we operate, all things being equal, the better, as the obstinacy of contraction is in proportion to the lapse of time, unless the alternate contraction of the uterus come in to our aid.

1305. There are three other situations of the placenta, which may be regarded as varieties of this case; the first, is where a small portion of this mass is pushed through the os uteri; the second, is where about one-half has escaped; the third, is where the greater part of this body is without the mouth of the uterus. In all these instances, the farther progress of the placenta is prevented by the os uteri firmly embracing it; at least so firmly, as to render every attempt to relieve it by the cord, not only fruitless, but, perhaps, mischievous, by causing its rupture.

Mode of acting in each Case.

1306. To relieve the placenta from its first situation, we must aid its descent by employing the crotchet recommended for the delivery of this mass, in cases of flooding by abortion, (see figure, p. 404,) or by dilating the os uteri as recommended, (1295) first pushing up the protruded portions.

1307. For the second condition, the hand must be introduced into the vagina; and a finger passed under the edge of the os uteri, by which successive portions of the placenta must be hooked and brought downward, until the whole is relieved.

1308. In the third instance, all that is required is, the introduction of the hand, and the firm seizure and compression of the placenta, as near the os uteri as possible; this compression near the stricture diminishes the bulk of the placenta so much, as to permit its escape, by drawing the whole mass toward the os externum.

1309. The cases I have just described, are far from being uncommon; and few offer greater embarrassment, to the young or inexperienced practitioner. The cause in many cases of placental detention, is not sufficiently well understood, or sufficiently early ascertained, to render them free from risk—I should, therefore, recommend to the young practitioner, to search for it, whenever any unusual delay takes place, though the case be not attended by flooding, or other accident, after having put in practice all that is important or essential to its expulsion; or having waited until the condition of the uterus,

as felt through the abdominal parietes, gives evidence, it has contracted sufficiently, if not successfully.*

SECT. V.—*Of the Delivery of the Placenta, when the Cord is broken or very feeble.*

1310. An undue force applied to the cord, for the delivery of the placenta, may rupture it; hence, the important caution, of not applying too much. It sometimes happens, however, that a very moderate stress will destroy its connection with the placenta—this may arise from a weak state of this production, though it may be sound; it may arise from a morbid condition of it; or from its being in a state of putrefaction.

1311. Those who are in the habit of seeing many cases of midwifery, can pretty well judge of the firmness or strength of the cord, so soon as they see it; and will from that judgment, regulate their endeavours to extract the placenta by it. When the funis is frail, or very tender, it should never be used as a means to deliver the after-birth; it should always be preserved as a guide for the hand, should it become necessary to enter the uterus. The rupture of the cord in itself, does not necessarily create difficulty; since, when this part is very delicate, we do not employ it, in our attempts to free the uterus of the placenta—therefore, in such cases, the placenta derives no advantage from its preservation, as regards its unaided delivery; but it may be of important service, should it be necessary to relieve it by the hand.

1312. It will follow from what has been said, (1311) that it is not always necessary to make an artificial case of a ruptured cord; for the expulsion of this mass is in nowise promoted by its preservation, if the cord be too feeble to act with it; delivery, therefore, in such case, must depend upon the spon-

* For the mode of acting in “placental presentations,” or where this mass is attached to the mouth of the uterus, under all its various forms; for the plan of proceeding in hæmorrhagy from a partial separation of the placenta; for the rule of conduct where it is too adherent, and attended by flooding; for rules to be observed in hæmorrhage from atony of the uterus after the separation of the placenta, &c., see Chapter on Uterine Hæmorrhage.

taneous efforts of the uterus to clear itself of this burthen, and not upon any force that may be applied to the funis.

1313. But, though the preservation of the cord may not aid the placenta in its descent, when this is too tender to be an agent, yet it is highly important it should be carefully preserved; since, we cannot determine *à priori* when it may be necessary to deliver this mass artificially; for, during its continuance within the uterus, some accident may attack the patient, and render it indispensable to interfere with its delivery.

1314. It may, however, as a general rule, be remarked, that the placenta is longer in descending when we cannot aid it by the cord, or when the cord is separated from it, than when it is strong and preserved—the reason is obvious. We should, therefore, in such cases, promote the contraction of the uterus by frictions; and, from what I have experienced of the action of the ergot, (1302) I should be induced to give it a trial before I would pass the hand into the uterus; nor should the hand be introduced until it was satisfactorily proved, it had failed.

1315. Should we not succeed by these means in relieving the uterus of its burthen; and, especially, should any accident complicate this period of labour, we must introduce the hand, and deliver the placenta. The difficulty in this case is no greater than in common cases, provided the cord (however feeble it may be) is preserved, since this will, with proper management, conduct us to the placenta, as certainly as a stronger one—but, if it be separated, a great deal of embarrassment may be sometimes created, by not being able to distinguish the placenta from the uterus, unless this mass is detached; if it preserve its connection with the uterus, the unskilled hand will find much difficulty in distinguishing it from the surface of this organ.

a. The Signs by which the Placenta may be detected.

1316. The following marks will, however, lead to the detection of the placenta; 1st. If the fingers pass over the internal surface of this body, its vessels, distended by blood, will be distinctly felt; 2d. If the placenta be pressed by the fingers,

the woman will scarcely perceive their presence; whereas, if the uterus were touched, she would complain; 3d. If the hand be placed externally over the uterus, opposite the one within the uterus, the thickness of the parts will declare, whether it be the placenta which interposes between them, when this mass is on the anterior part.

b. The mode of acting in this case.

1317. When it is ascertained that the hand is in contact with the placenta, the latter must be cautiously separated from the uterus, by insinuating the fingers between them. There is sometimes a difficulty in getting behind the placenta, in consequence of the membranes interposing between the hand and the surface of the uterus. To overcome this hinderance, the hand should be placed behind the membranes, and then permitted to travel up to the placenta itself, and effect the separation.

1318. Should the placenta be found loose in the uterus, it must be taken hold of and withdrawn.

1319. I have a few times met with difficulty in the delivery of the placenta from its excessive size. These cases have uniformly occurred in instances of premature delivery, or rather where the delivery was not premature, but where the child had died some time before its birth. In the particular cases alluded to, the children were not found putrid; but, on the contrary, were hard and rigid, though a little swoln; the funes were always much enlarged, very tender, and engorged with a brown blood; the placenta were found, in these cases, so large as to distend the uterus so much, as to give the suspicion, to those unacquainted with the nature of the case, that there was another child.

1320. In looking over my records of these cases, I do not find one that did not require artificial aid for its deliverance by the introduction of the hand; and, in two of these, the placenta were so enormously large, as to nearly fill a common-sized chamber-pot. This prodigious increase appeared to be owing to the infiltration of water into the meshes of the placenta. In all the cases of the kind now under considera-

tion, no aid was derived in the delivery of the placenta from the funes, as they were uniformly found so frail as to permit no force to be applied to them.

CHAPTER XXXII.

ON THE INVERSION OF THE UTERUS.

1321. THIS untoward, and too fatal accident, is, perhaps, more frequent than is commonly supposed. Instances of sudden death after delivery, often remain unaccounted for; and there is every reason to believe, that this displacement of the uterus is sometimes the cause. Examinations of women who have died during, or soon after delivery, are not so frequent as their importance seems to demand. This indifference to examinations after death, arises, first, from a proper estimate of their value not being made, even by medical practitioners; second, from the aversion most people feel to have their friends' remains disturbed; third, to the disingenuous conduct of the attending physician himself, who may not wish the cause of death to be ascertained, lest it should do injury to his character, either from his not having known or suspected the true one, or by exposing some accident for which he fears the world would hold him accountable. Hence, as I have just observed, this complaint is, most probably, every now and then concealed; and therefore, its frequency in producing death, cannot be exactly estimated.

1322. Inversions of the uterus may be either complete, or incomplete—by a complete inversion, I mean the passing of the fundus and body of the uterus through the os internum; or being turned entirely inside out, to the very neck of this organ. But it is not necessary to the complete inversion, that the body and fundus escape through the os externum; as this condition may happen, and yet the uterus be concealed within the vagina.

1323. The incomplete may be in different degrees; first, where the fundus falls down to the mouth of the uterus: but is prevented from passing through it, by the latter being contracted; or the force may have been insufficient for this purpose; second, where it has passed perhaps half its length through the os uteri; third, where it is completely inverted, with the exception of a small portion of the body and neck. In the two latter conditions, the body and fundus may be compressed, or strangulated, by the neck of the uterus contracting forcibly upon the protruded part; or it may be free from this restraint; each of these presents different indications.

1324. Proximate cause.—For the uterus to become completely inverted, several circumstances must combine; first, the fundus must most probably contract, while the body and neck must be flaccid; second, a force or weight must be applied to the fundus, capable of making it descend through the os internum: this force may be a power applied to the cord; and the weight may be the placenta itself, engrafted immediately upon the fundus.

1325. Remote cause.—The remote cause of this accident, is the want of power or disposition, in the body and neck of the uterus, to contract. This may be occasioned by an over-distention of this organ, from an excess of liquor amnii; from the unusual size of the fœtus; from a compound pregnancy; from hæmorrhagy; from passions or emotions of the mind; from exhaustion, in consequence of previous disease; from long-continued uterine efforts to effect delivery, &c.

1326. Symptoms.—When this accident takes place, the woman almost instantly complains of a severe and distressing pain about the region of the uterus; an effort to force or bear down; nausea, and sometimes vomiting; great faintness, with more or less hæmorrhage; cold clammy sweats; pulse small, frequent, or extinct. A variety of nervous symptoms may also occur of a most distressing kind, arising most probably from the new situation the abdominal viscera are forced to take, when deprived of the support of the uterus.

1327. If we examine per vaginam, it will be found that the vagina is occupied by a firm resisting tumour, covered by the

placenta, or otherwise, as the period may be at which this accident occurs; or the fundus and body may be pushed through the os externum, either bare, or covered by the placenta. This casualty may take place immediately after the birth of the child; or it may not occur for hours, or even days, after this event. If the hand be now placed upon the abdomen, we shall fail to find the uterus.

1328. Incomplete.—The incomplete must have the same general causes as regards the effects upon the fundus and body—that is, the fundus cannot be supported by the body, from its loss of power, by the operation of either of the same remote causes, (1325) but is prevented from entirely passing through the neck, by the latter contracting, and arresting it within, or only permitting it to pass in part. The same general train of symptoms occur, but this condition is almost always attended with a greater discharge of blood, than when the inversion is complete.* If an examination be carefully made per vaginam, the fundus of the uterus may be detected in one of the situations mentioned for this species or variety of inversion. (1323)

1329. The mechanism of inversion is sufficiently simple; it would seem to require but a state of atony of this organ to produce it, with (perhaps) more or less pressure upon the fundus; or the mere contraction of the fundus; or the implantation of the placenta on this part. When this derangement takes place before the delivery of the after-birth, we have much reason to suspect that its weight, as well as its location, materially contributes to its production—location, indeed, would seem almost a *sine qua non* to inversion; for we either find the placenta discharged from the vagina, or else attached to the fundus of this organ; now, had the placenta been attached to any portion of the uterine parietes, that part must have contracted that it might be thrown off; and that contraction of the body of the uterus,

* It is a remarkable fact, that less blood is lost when the uterus is completely, than when it is partially inverted. This is not, perhaps, of difficult explanation; since, when the inversion is complete, the uterus contracts to a certain extent; and, by this contraction, the now internal surface of this organ is made to impinge upon the vessels which carry blood to it, and thus interrupts or cuts off fresh supplies of this fluid.

most probably would have given such support to the fundus as to have prevented its falling down.

1330. It is almost universally supposed, that an undue force applied to the cord for the delivery of the placenta, is the principal cause of this accident; but in this I differ from such as have adopted this opinion; and for the following reasons: first, because the accident has occurred after the delivery of the placenta; second, because it has taken place, when no such force has been applied. But the caution, not to apply too much force to the cord to withdraw the placenta, is founded upon just and important principles; since, did the disposition to inversion exist, and this mass be attached to the fundus, it would be almost certain to produce it; when, perhaps, without such force, the woman might escape from the danger.

1331. Mr. Burns, after enumerating several causes of inversion, such as pulling of the cord; the too sudden delivery of the child when the cord is too short, &c. says, "from the same cause, or sometimes perhaps from sudden pressure of part of the intestines on the fundus uteri, occasioned by strong contraction of the abdominal muscles, a part of the fundus becomes depressed like a cup, and encroaches on the uterine cavity. This generally rectifies itself if let alone." I would inquire, for the sake of information, how this dipping of the fundus is known to exist? and how it is ascertained, that it "generally rectifies itself if let alone?"

1332. I can readily comprehend, that an unusually short cord, with the sudden expulsion of the child, may produce inversion, even when there is no disposition to atony in the uterus; as the fundus may be dragged down at the instant relaxation is about to take place; but I confess myself entirely at a loss to comprehend what Dr. Merriman* may mean by a short cord, when its length permitted a child, by a sudden effort of the uterus, to be "thrown to the extremity of the bed," though this cord was "naturally short, besides being twice passed round the child's neck," and the placenta retained, "though low in the pelvis." Quere, if this be a short cord, what constitutes a long one?

* Denman's Midwifery, Francis's ed. p. 514.

1333. The indications in inversion are simply these; first, to restore the prolapsed fundus when practicable; second, to prevent a reinversion after restoration; and third, if the fundus cannot be restored, to take off the constriction occasioned by the contraction of the mouth of the uterus.

1334. When the fundus is prolapsed to the mouth of the uterus, but contained within it, should the mouth of the uterus be sufficiently yielding, the hand must be gradually passed through it, and the fundus carried upward until restored—if the placenta has been thrown off, we need but retain the hand within the uterine cavity until we have sufficient evidence of its disposition to contract, and to maintain that contraction. If the placenta has not been thrown off, it will be found either loose, or adherent—if loose, it must be withdrawn with the hand after we are satisfied we may trust the uterus to itself. If adherent, we must gently separate it after the uterus shows signs of returning power; and, when separated, it must be taken from the uterus, when the hand is retracted.

1335. Should the fundus have escaped in part through the mouth of the uterus, it should be as quickly as possible returned, by pressing the most depending and central portion of the tumour, gently, steadily, and perseveringly in the direction of the axis of the os uteri until it retire; then if it does not return to its proper situation by its own resiliency, we must pursue it with the hand through the mouth of the uterus, nor leave it until placed in situ. The hand must be kept in the uterus, until, by the contraction of the uterus, there is assurance it may be withdrawn with safety.

1336. If the placenta offer itself before the prolapsed fundus, we may, if detached, deliver it immediately; but if it be adherent, and the mouth of the uterus does not offer too much resistance, it must be carried up with the fundus, and separated, as before directed. (1334) Should we, however, find much opposition to reduction, and this evidently, in part, arising from the bulk of the mass to be restored, it will (perhaps)* be best to separate it carefully, and then carry up the fundus.

* I say, "perhaps," because I cannot speak more positively upon a subject where my experience is so limited. The propriety of this practice I wish to

1337. Should the inversion be complete, it will, for the most part, be impossible to restore it, especially if several hours have elapsed since the accident. Dr. Denman says, "the impossibility of replacing it, if not done soon after the accident, has been proved in several instances, to which I have been called, so early as within four hours, and the difficulty will be increased at the expiration of a longer time. Whenever an opinion is asked, or assistance required, in those cases which may not improperly be called chronic inversions, it is almost of course that the reposition should be attempted; but I have never succeeded in any one instance, though the trials were made with all the force I durst exert, and with whatever skill and ingenuity I possessed; and I remember the same complaint being made by the late doctors Hunter and Ford; so that a reposition of a uterus which has been long inverted, may be concluded to be impossible. It seems as if the cervix of the uterus continued to act, or had soon acted in such a manner, as to gird the inverted uterus so firmly, that it could not be moved." This account of the impracticability of restoring the fundus when the inversion is complete, is in strict conformity with my own experience of this accident.

1338. It is said, the uterus has been reinstated after "complete inversion;" but of this we may justly entertain strong doubts; for the one recorded by Mr. White, purporting to be of this kind, was certainly not one of "complete inversion." In Mr. White's patient, we recognise nothing more than a partial one, as the symptoms declare. Mr. W. says, he saw the patient, about an hour after the accident, and "found the uterus of the size of a large new-born infant's head, *totally inverted*." Yet he declares the woman "was in great pain, and had lost much blood," neither of which circumstances attends complete inversion; for it seems to be agreed, that there is not much hæmorrhage at this time; and I know that pain immediately ceases when it becomes complete, as I shall state presently.

leave to farther observation; for, having met with but four cases of "inversion," I think that number inadequate to establish the best mode of practice.

1339. This patient "was very faint, and no pulse could be felt in either arm;" a condition which constantly attends the partial inversion; especially, when the mouth of the uterus contracts firmly upon the body, producing a strangulation of the uterus; which was precisely the situation of Mr. W.'s patient; for he declares, "the neck was a little contracted." Now, it must be obvious, upon a moment's reflection, that, if the inversion were complete, there is no mouth of the uterus to feel; for this part now offers its opening in the abdomen, and is not tangible by the finger. See case second.

1340. There is a condition of even a partial inversion, where it is as certainly impossible to restore the fundus, as if the inversion were complete; and this is when the fundus and a part of the body have passed the os uteri, and the latter contracts firmly, "so as," as Dr. Denman expresses it, "to gird the inverted uterus firmly, so that it cannot be moved." When this happens, the stricture occasioned by the contracted mouth, is so firm and resisting, that a finger cannot be placed between its edge and the confined uterus—here I believe it is impossible to pass the fundus, as the constriction will not yield.

1341. This variety of partial inversion, produces the most terrible and alarming symptoms imaginable; pain, faintness, vomiting, delirium, cold sweats, extinct pulse, convulsions, and, if not speedily relieved, death. Under such sufferings, where all chance of restoration is at an end, I have advised, with a view to terminate such severity of suffering, and to preserve life, the drawing down of the fundus and body, so as to complete the inversion. Should the placenta be attached, it must be carefully separated before we draw down the fundus.

1342. The propriety and safety of this plan, are, it must be confessed, predicated upon the happy result of a solitary case; but, from its entire and speedy success in this instance, it is rendered more than probable that it will be of equal advantage, if employed in others. "All reasoning upon the subject," is certainly in its favour; and experience, so far as a single case may be entitled such, is equally so.

1343. Should the practitioner, however, be so fortunate as to meet with a case where the mouth does not confine the pro-

truded part, he should attempt restoration, however large a portion of the uterus may have passed through, by gently, but firmly compressing it, so as to reduce its size; having first removed the placenta, if not previously done, and urging the prolapsed part upward in the axis of the os uteri. In such case, perseverance may, I am willing to admit, do much; it ought most certainly to be tried, if there be the smallest chance of success.

1344. This chance, however, should be clearly ascertained, by carefully examining the condition of the constricting part—if it be soft and yielding, a hope may be indulged that the resistance may, by proper proceeding, be overcome. If this friendly condition obtain, there will be, beside this pliant disposition of the os uteri, an absence of all, or nearly all of the terrible symptoms just enumerated (1341;) but, if he cannot find the mouth of the uterus by a careful examination after the placenta is removed, and if there should be an absence of the train of appalling symptoms above named, he should desist at once from every attempt at reduction, as his efforts will not be attended by success; and the continuance of them will not only give his unhappy patient much unnecessary pain, but will hasten her death.

1345. The mode to be pursued, when it is necessary to complete the inversion, is simply to place the woman upon her back near the edge of the bed; and have her legs supported by proper assistants—the hand is to be introduced along the inferior part of the vagina, but sufficiently high to seize the uterus pretty firmly; it is then to be drawn gently and steadily downward and outward, until the inversion is completed; this will be known by a kind of jerk announcing the passing of the confined part through the stricture. Traction should now cease, and the part be carefully examined; if the inversion be complete, the mouth of the uterus will no longer be felt, and there will be an immediate cessation of pain, and the other distressing sensations.

1346. The situation of the uterus, is the very reverse of what it was a short time before; its internal face is now the external; while the external or peritoneal surface, has become

the internal, or the uterine cavity—it is probable that the ovaries, tubes, and broad ligaments will be included in this space. Dr. Denman informs us these surfaces do not coalesce. The woman may menstruate from the now external surface.

Case First.

On the 2d of July, 1807, at ten o'clock, A. M., I was called to the wife of Samuel N——, in labour with her first child. Her pains were weak and irregular, but pretty frequent; presentation perfectly natural. As every thing appeared promising, I left her to the care of her midwife. At four o'clock, P. M., she was suddenly delivered—considerable hæmorrhage with faintings followed. I was again sent for, but did not see her until six o'clock, as she lived at some distance from the city. I found her without pulse, cold, and covered with perspiration; with laborious and hurried breathing; the placenta not delivered, and the hæmorrhage continuing. I ordered her such remedies as appeared most pressingly indicated, and immediately examined her per vaginam. I found the placenta just within reach of the finger, and attempted to withdraw it, but it gave great resistance and extreme pain. I now introduced my hand, and found a tumour resembling in shape and size the indentation at the bottom of the common black bottle, over which the placenta was spread. This case was perfectly new to me, although I strongly suspected the nature of the disease. I searched for the detached portion of the placenta, from whence the flooding proceeded, and carefully detached this mass from the tumour; I then endeavoured to push up this body, but quickly desisted, from the extreme pain it occasioned, and the uncertainty that it was the best mode of proceeding to procure relief. My patient died in half an hour.

I obtained leave to inspect the body, and Dr. Rush very kindly accompanied me. It proved, as I had previously suspected, to be a partial inversion of the uterus. I dissected out the uterus, which was still so flaccid, as to be turned inside out with as much facility as a soaked bladder. The fundus dipped into the body of the uterus about three inches.

Case Second.

On Friday, 24th March, 1808, at half past 5 o'clock in the morning, Mrs. P. was delivered of a living child; her waters discharged themselves six or seven hours previously, and before her midwife was called. The placenta came away spontaneously, as the midwife asserted, and to which the patient herself agreed; its expulsion was attended with great pain and great flooding; she vomited severely for an hour, and several times fainted without an abatement of the discharge. This, however, was eventually moderated by the acetate of lead, and perhaps contraction of the uterus itself.

After this, she continued pretty tranquil, but weak, until Sunday morning, when there was a renewal of the hæmorrhage, with pains resembling those of labour. These ceased in the afternoon; but she became more alarmingly ill. She now fainted frequently, and the discharge continued. In this way she kept until Tuesday, at which time I was called, at the desire of Dr. Atlee, whose patient she now was. The doctor suspected the true state of this woman's case, and mentioned his opinion to me, to which at first I could scarcely assent, as almost all the cases I had ever heard or read of, as well as I recollected, had soon proved fatal; and the case I had witnessed a few months before, but served to make me doubt the doctor's representation, or rather opinion. Here, if his judgment were correct, was an instance of inverted uterus of four days' standing; a case giving contradiction to all I had heard or believed on the subject.* I however visited the patient by appointment, and found her almost exhausted—her pulse so frequent as not to be numbered, and so small as scarcely to be perceived; had great difficulty in breathing, and became faint on the least motion: insatiable thirst, frequent vomiting, cold extremities, and a continuance of uterine discharge. I examined her, and found, as Dr. Atlee had declared, the uterus to be inverted. The fundus

* Since writing the above, I have strong reason to believe, that the inversion did not take place until the morning, namely, Sunday; on which there was a renewal of the flooding, and the occurrence of pains resembling labour; as at this time, the uterus suffered a universal atony.

was down at the os externum, and could readily be seen partially covered with a thin coagulum of blood, when the labia were separated. The places not hid by this coagulum, were rough or spongy, and of a dark brown colour.

A very dreary prospect presented itself, by ascertaining this poor woman's situation; we believed death to be inevitable. But one resource offered itself, namely, to attempt the reduction of the fundus, hoping, as the uterus had not escaped from the vagina, the inversion might not be so complete, as to render this impossible. We accordingly proposed this attempt to the husband and friends of our patient, candidly stating her situation, and the almost certain result, if relief was not obtained in this way. They without hesitation submitted the case to our management.

We carefully drew her to the side of the bed, and had the knees drawn up and supported. I gently introduced my hand under the tumour, and gradually raised it; this gave me sufficient room to examine the nature and extent of the inversion. The instant I raised the womb, there was a large and sudden discharge of urine; this gave still more freedom to an examination, that was to terminate in the disappointment of my hope of the reduction of the fundus. I found so much of it had passed through the mouth of the uterus, as to render any attempt at reduction futile; and the more especially, as the tumour was augmented by its having swelled since its prolapsus. The stricture occasioned by the contracted mouth was readily felt, and was very strict. I was extremely perplexed for the moment how to proceed, or to announce the failure of an attempt, that alone, at first sight, appeared to promise success or even relief, but it fortunately occurred to me, before I withdrew my hand, that I might take off the stricture by inverting the uterus completely. Agreeably to this suggestion, I grasped the tumour firmly, and drew it pretty forcibly towards me, and thus happily succeeded in slipping the remaining portion through the constricting mouth. The woman was almost instantly relieved from much of the anxiety and faintness, she had before experienced; but as she was so exhausted by previous suffering and discharges, and as the internal surface of the uterus was now exposed to

the influence of the external air, I was prevented from feeling or giving the slightest encouragement of recovery to her friends; but fortunately the event proved how groundless were my fears; for from this day, she rapidly recovered, without another alarming or troublesome symptom.

Milk was freely secreted on the fourth day after, and continued freely. Our patient was twenty-three years of age, delicate, but always healthy, but more especially so during her pregnancy.

I visited this patient to day, November 26, 1808, and found her at the wash-tub, perfectly well; suffers no inconvenience whatever from the uterus; menstruated regularly for three periods; had more or less discharge of mucus tinged with blood for four months; this last four months has had no discharge of any kind; suckles her child, which is remarkably thriving. The uterus is so much contracted, as to be no longer within reach of her finger.*

Case Third.

On the 23d of November, 1808, Mrs. G—— was suddenly delivered of a large female child, which breathed and cried freely immediately after its birth. The funis was not cut until after the pulsation in the cord had entirely ceased, which was in about ten minutes. After the child was taken away, I took hold of the cord, and merely tightened it, on which she begged me to wait, as it gave great pain. I, however, traced the cord to the vagina, and found at the os externum a placenta I thought unusually dense and large. On gently attempting to withdraw it, as I thought it loose in the vagina, I found uncommon resistance, which I attributed to its bulk, and desisted

* I was this day (June 1, 1810) called to Mrs. P., on account of indisposition. She gave the following account of her situation: "She had been pretty regular ever since last report, but for the last few periods it has been more abundant, and is sometimes accompanied by the discharge of coagula; it continues longer than formerly, and, when it ceases, it is followed by profuse fluor albus." I saw Mrs. P. again in April, 1818, and found her enjoying a very fair proportion of health—the catamenial discharges had ceased for the last five years, and she has been a widow several years past. She has never been impregnated since her accident.

from further effort, hoping the uterus would, by contracting, push it completely down. In this I was disappointed;—some hæmorrhage ensued. I now expected a more than common cause detained the placenta in the vagina, and began a more minute examination. I pierced the substance of the placenta with the fore finger of my left hand, and tightened the cord with my right; beneath the placenta I perceived a round hard substance, which I but too quickly discovered to be the fundus of the uterus inverted. I immediately introduced my hand into the vagina, and found the detached edge of the placenta from which the discharge proceeded. I carefully separated the whole of this mass, and withdrew it from the pelvis without the least difficulty. A considerable flooding ensued.

As Mrs. N——'s case (case first) gave me a complete insight of the mechanism of this displacement of the fundus of the uterus, and as I had resolved to attempt its reduction if ever an opportunity again offered, I instantly, after withdrawing the placenta, introduced my hand, and pressed the prolapsed fundus firmly with the back of my fingers, and carried it upwards in the direction of the axis of the uterus, and in less than half a minute, succeeded completely in restoring it. Mrs. G—— has not had a single unpleasant symptom.

Case Fourth.

Mrs. G—— was delivered on the 25th of December, 1808, at six o'clock, P. M., after a labour of some hours, of her first child. The placenta was extracted in about fifteen minutes without force. There was some hæmorrhage, and considerable pain. She was put to bed, and became very faint, and complained of great pain, which was occasionally augmented. She continued in this way, only gradually becoming worse, until nine o'clock, at which time I was sent for.

I found her with a small frequent pulse, great anxiety, extremely pale and cadaverous, and in a profuse cold sweat. I inquired respecting the flooding; but this did not appear to be sufficient to account for her present situation. I immediately suspected a partial inversion of the uterus, and thought proper to apprise her friends of the probable cause of her distress

and danger, and of the possible result of it. Every thing was left to my management. I immediately after examined her per vaginam, and found my conjecture true.

The uterus was found inverted, and its fundus was just within the os externum. I was much alarmed for my patient, as three hours and more had elapsed between the time of her delivery and my being called; she was much exhausted, and in extreme agony. I quickly introduced my left hand into the vagina, and applied the back of my fingers firmly against the tumour, while I moderated its influence in carrying the uterus directly up through the pelvis, by having a gentle pressure made upon the abdomen above it. The tumour soon began to yield, and in about two minutes the fundus was completely restored.

On the third day after, my patient complained of a severe pain in the right side just above the ilium, for which I bled her freely, and purged her briskly. Nothing unpleasant supervened; she might be said to have had a good getting up.

CHAPTER XXXIII.

OF TWINS. &c.

1347. UNDER this head I shall consider pregnancies composed of two or more children. Twins are of rare occurrence; so much so as to render it difficult to establish the proportion between them and single births; especially, as their production seems to be governed by contingencies not within control, or altogether inscrutable. Thus, in the Middlesex Hospital, London, there was but one in about ninety-one; while in Dublin the proportion was greater. In France, agreeably to one return of "l'Hospice de la Maternité," the proportion was about one in eighty-eight; but, according to that of Madame Boivin of the same institution, the proportion was only one in about

one hundred and thirty or forty, while in that of the "*Maison d'Accouchemens*," the proportion was about one in ninety-one.

1348. In this country, the average is about one in seventy-five. From this it would appear, that climate, or the state of civilization, agreeably to the remark of Dr. Denman,* exerts an influence upon the multiplication of the human species; and that where the means of life are more abundant or more easily procured, the proportion of twins is probably increased—this however is by no means proved; but that there are conditions and circumstances which give rise to more double births in this country is certain, if reliance can be put upon the various tables of births.† It would be a curious subject of inquiry to the political economist, and to the physiologist, to ascertain on what depends the frequency of plurality of children.

1349. It is thought by many women, that the disposition to double births is hereditary; and some facts within my own knowledge seem to countenance this supposition; but they are by no means sufficiently numerous, or sufficiently strong, to confirm it. I can say, however, with some safety, that it is in some instances constitutional; I know one female, who has had five twins in succession, and had not, when I conversed with her on the subject, (three years since) ever had a single birth. I knew another who had twins three times; but not immediately following each other.

1350. Were I to decide from my own practice, the average would be higher than I have stated above; (1347) it would be one in about fifty or sixty—but this would not altogether be correct; as for many years I was frequently called to the aid of many midwives in this city, among which there were a number of cases of twins—this would increase the average as regards my own practice, without giving a just view of their frequency; since, these cases should be considered as properly belonging to the averages of these midwives.

1351. Triplets are very much more rare—in the returns of the cases in the "*Maison d'Accouchemens*," as furnished by

* System, Francis's ed. p. 534.

† Francis's ed. of Denman, in a note, pp. 613, 614. Dr. Arnell's average is one in seventy-five; Dr. Moore's, one in seventy-six.

Baudelocque, there appears to have been but one in more than eight thousand cases; in the return of Madame Boivin of the cases of "l'Hospice de la Maternité," one in rather less than seven thousand; Dr. Arnell one in twelve hundred, and, in my own practice, in nearly nine thousand cases,* I have not met with an instance of triplets. Of more numerous progeny, the proportion must be infinitely small; since, in the practice of the two hospitals above mentioned; in the private practice of Drs. Arnell, Moore, and myself, amounting in all to more than 50,000 cases, there is no mention of an instance of four children at a birth.

1352. Women who are more than ordinarily large, are apt to suspect themselves pregnant with twins; and, on this account, much anxiety is always expressed. The accoucheur is not unfrequently consulted; and his opinion requested on this momentous subject, so soon as this fear is excited; but much caution should be used in answering this question; indeed it should always be resolved in the negative, and for two reasons especially; first, because it is impossible to decide it positively; and, secondly, if it could be, it never should be, as much mischief might arise from the anxiety it would produce.

1353. We have no certain marks before labour to determine there is more than one child in the uterus; a number of signs† are recorded, purporting to declare this condition, but not one of them can be positively depended on. Baudelocque and Denman say the same thing; the former is of opinion that the union of all these signs sometimes gives strong presumption of the existence of twins, but that "touching alone can dissipate our doubts, and that only at the last months of pregnancy." "For," says he, "when the belly is so large as to give a suspicion of two children, if there is but one, it is always very moveable; because it is then in a large quantity of water: we

* I may now say, in rather more than nine thousand cases.

† The enumerated signs which purport to declare the woman pregnant of twins are—1st. The extraordinary size of the abdomen of the woman; 2d. The division of the abdomen into tumours upon its anterior surface, occasioned by the unequal stretching of the recti muscles; 3d. An oedematous condition of the inferior extremities, after the third or fourth month; and, 4th. The various or numerous places at which the woman feels motions or stirrings.

easily move it by means of the finger introduced into the vagina, and its rolling is never more manifest than when we do that. When there are two, that movement is scarcely sensible; we easily distinguish that the child we endeavour to move by touching, is surrounded by only a little fluid, and that it is encumbered by another solid body; if we apply the hand on the woman's belly in one of these movements, when the parietes of the uterus are supple, and, as it were, slackened, we may discover these children as clearly as in other cases we distinguish the feet, the knees, or the arm of that which is single."*

1354. The whole of the information we can gain, either by taking into consideration the enumerated signs, or by touching as proposed by Baudelocque, can never amount to more than presumptive evidence; as the whole of the signs have been known to exist without the woman being pregnant of twins. And the quantity of liquor amnii differs from a few ounces to several pounds in even single pregnancies; therefore, no certain conclusion can be drawn from the mobility or immobility of the fœtus in utero.

1355. This uncertainty whether a woman be pregnant of one or more children, fortunately is of no consequence, until the labour has positively commenced: for, previously to this time, our conduct in every respect should be the same, as if there were but one child. But at this period it would in many instances be extremely useful, when the children were offering untowardly; as the cause of difficulty would then be ascertained, and the indications fairly declared. In cases then of twins, the situation of the children, either as regards themselves, or the pelvis, may be more or less favourable, and, consequently, complicate the labour in proportion.

1356. Twins may, first, be enclosed in one common covering of membranes, and inhabit the same nidus, and float in the same waters; second, they may each have a separate amnion, while the chorion may be common to both; third, each may have its own membranes, waters, and placenta.

* System, Vol. III. p. 442.

1357. The different situations in which twin children may be placed while in utero, especially the two first, (1356) disturb every projected scheme, with respect to impregnation: they unsettle all that has been hitherto thought to be pretty well proved, as regards the ovaries, the fecundation of ova, and the absolute nature of the ovum itself; and throw into confusion all that has been thought clear; or, they oblige us to extend our opinions of the powers of the corpora lutea, very much beyond what has hitherto been thought of.

1358. They disturb (1356) all the schemes for impregnation, since they all suppose, that each ovum is a separate and distinct germ, and included in distinct coverings; yet two are found involved in the same common covering, with two umbilical cords, and with one placenta. It unsettles that which has been thought pretty well confirmed as regards the ovaries, to wit: that they furnish ova for impregnation, upon different portions of its surface, yet two embryos are found to bathe in the same waters, and with one placenta for their support; proving, it would seem, that an ovum may contain more than one germ, which may be fecundated at one and the same time. They throw into confusion that, which has, especially of late, been thought perfectly clear and well understood: as follows, that the corpora lutea furnish the ova for impregnation; that each corpus luteum yields its own ovum, and that each ovum brings with it, from its nidus, its own chorion and amnion; yet they are both found common to two children; or the chorion alone common, and each has its amnion; yet with distinct cords and a placenta in common—now I would ask, how can this be, agreeably to our present notions of impregnation? Does it not oblige us to extend the powers of a corpus luteum, and make us admit, that one ovum, may contain the rudiments of two fœtuses, or oblige us to call in question the arrangements just spoken of? (1357)

* May we not reasonably doubt, that two children can float in the same waters, as an original disposition of them? May we not suppose that the muscular exertions of the children may have broken the separating membranes, and thus permitted the waters to unite? For it cannot be doubted, that they have been found together: as Dr. Denman (Francis's ed. p. 541.) tells us, his friend, Dr. Sims, informed him of a case of twins, where the funes were so closely twined together, as to appear but one.

1359. The third situation of *fœtuses in utero* (1356) proves, that two ova may furnish embryos with their own coverings, since they exist separately and distinctly in some cases of twins, and their separate existence renders it more than probable that they were the product of different ova, and as probable that each issued from a separate ovarium. For, if we do not admit this, we must admit that, which not only wants proof, or even probability, but what is very much more difficult to reconcile; namely, that a fallopian tube can successfully transmit two ova at one and the same time, or consecutively; which, agreeably to all the present known schemes of the ovum getting possession of the uterus, would be very difficult to reconcile, though not, perhaps, impossible; but by admitting a simultaneous action in the tubes, and each ovarium furnishing an ovum, the explanation is easy; therefore, to be preferred. But a truce with speculation.

1360. The labour of a woman pregnant with twins, begins in every respect like a labour in which there is but one; but its progress is neither so regular nor so rapid. This is not difficult to explain; since it is impossible that either child can receive the undivided influence of the contracting uterus, and therefore it cannot be so rapidly expelled; or they may be so situated as to impede, if not to oppose, each other's exit: hence, the labour is slower, at least with the delivery of the first of the children; but with the second it may be quicker, nay, even rapid. This being the case, if we could even determine beforehand with certainty, that the labour is a twin case, we should not alter our conduct, except there be something in the labour itself, which would require interference, independently of its being a compound pregnancy.

1361. In general, nay, almost always, we do not know we are encountering a twin case, until after the birth of the first child; we may then suspect this to be the case: 1st. When the child is small, compared with the size of the abdomen of the mother, and the quantity of water discharged; 2d. If the abdominal tumour has not subsided as much as if it were a single child; 3d. Because the child may be felt through the abdominal and uterine parietes; 4th. Because, there is, in general, a

renewal of uterine contractions, and the child can be felt per vaginam, if its membranes have given way, or the membranes themselves when distended with the waters, if they are entire.

1362. After the birth of the first child, and we have ascertained that there is a second, it then becomes a question, what is to be done with the second? Accoucheurs seem to have puzzled themselves in answering this plain and simple question, and have attempted to lay down rules, which are calculated to embarrass, rather than instruct the inexperienced practitioner. The rule upon this subject is plain, and void of all ambiguity, since it is founded upon the disposition and situation of the uterus itself. Baudelocque alone is rational on this subject.

1363. I have said the rules of practice in cases of twins, after the birth of the first child, were free from all difficulty or ambiguity; for after one child is expelled, one of two things must happen; either, that pains will pretty quickly ensue, and deliver the second if its position be natural, or there will be a suspension of pain.

1364. If in the first case, we must conduct the labour, as if it were an original labour, and not to be interfered with so long as there is a rational expectation, that nature is competent to relieve herself; and if this promise be not made, or seasonably fulfilled, we must interfere as upon any other occasion, where this interference might be necessary. When pains follow the expulsion of the first child, there is every expectation they will accomplish the delivery of the second; first, because it will receive the whole influence of the uterus, which was divided before; second, because the subsequent pains will be more powerful than the antecedent ones; since the uterus is now smaller, and its tonic contraction more perfect, which (*cæteris paribus*) always increases the alternate contractions of this organ; third, because the parts have been dilated, and are of course made to yield by the passage of the first child; therefore, there is no resistance to be overcome.

1365. If in the second situation, namely, where there is a suspension of pain, our duty is equally clear—for it will de-

pend altogether upon the situation of the uterus itself. This condition will consist in its being uncontracted, or contracted.

1366. If in the first condition, it will be attended by hæmorrhage, or be free from it—if with flooding, we are to deliver as we would in any other case of hæmorrhage, and be regulated by the same rules which govern upon such occasions; if no hæmorrhage be present, we must solicit the contraction of the uterus by frictions upon the abdomen, until it contract. If it be contracted, and pains do not pretty soon follow, I have long thought it best to make the labour an artificial one, and for the following reasons :

1367. First, because if pains do not come on in the course of a half hour after the tonic contraction of the uterus is well established, it is altogether uncertain when they may take place; and the patient is then left in great anxiety for the event; second, after the expulsion of the first child, a hæmorrhage may ensue, which will oblige us to deliver under all the embarrassments it gives rise to; third, there is nothing to apprehend in terminating the labour, as the tonic contraction is secured, and no difficulty can be created, since the uterus will readily permit turning if the head present, or the delivery, as directed, if either the breech, feet, or knees present, when there is a necessity of making either an artificial labour; fourth, we remove at once the anxiety of the woman; which, if long continued, may have a very unfriendly influence upon the powers of the uterus.

1368. All rules for conduct, taken from the lapse of time, are liable to very serious objections; for mere waiting does not insure the proper condition of the uterus to render our acting safe; and we are never to act if that proper condition (1272, 1273) does not follow, however long we may have waited: for, at the end of four hours, (Dr. Denman's* rule,) it may be just as improper to deliver, as it was fifteen minutes after the birth of the other child; and if contraction will justify us to deliver at the end of four hours, it ought to justify us at any intermediate period. And if we are to act at the end of four

* Introduction, Francis's ed. p. 540.

hours, be the condition of the uterus what it may, (for nothing is said of the state of this organ,) we shall as certainly do mischief by our interference, if the uterus be not contracted, as if we had acted at any other antecedent period. If then we do not insure the contraction of the uterus by waiting, we gain nothing; and it will be proper, therefore, to act whenever we are assured, that the powers of the uterus are in full and healthy play.

1369. Should any of the enumerated accidents (625) complicate a labour of twins, we must act as in any other case; taking care, at the same time, to distinguish the proper feet, if we turn, and the membranes are ruptured; and if they are not ruptured, and we discover it to be a twin case, in proper time after we have commenced the operation, not to rupture the membranes of the remaining child. If the breech, feet, or knees offer, we must bring down the feet, or act upon them, as has been directed—or if the head present, and the labour be far advanced, we must use the forceps, though we are certain it be a twin case. Or should any thing untoward take place during the transit of the second child, we must act as the nature of the case requires, without reference to its being a twin.

1370. Mr. Burns,* I think, lays down two very doubtful rules for the management of twin cases—the first is, that “if effective pains do not come on in a quarter of an hour, the child ought to be delivered by turning.” The second is, “if the position of the second child be such as to require turning, *we are to lose no time*, but introduce the hand for that purpose before the liquor amnii be evacuated, or the uterus *begin to act strongly on the child*.”

1371. If we were to act agreeably to these directions, we should almost constantly have cause to repent the enterprise; for we certainly should do mischief, by exposing the uterus to a state of atony; and thus provoke, perhaps, a fatal hæmorrhage. I must repeat, in such cases, we should pay no regard to the time, which may elapse after the birth of the first child; it is

to the condition of the uterus alone we should direct our attention, and that alone must regulate our conduct.

a. On the management of the Placentæ.

1372. From what has been said above (1356, &c.) it will not always be found, that each child in twin cases, will have its placenta; yet it is generally the case; and though only connected by interposing membrane, we are obliged to deliver them together. Before, however, we make this attempt, when we have reason to suspect there is another child; or when this has been ascertained, we should apply two ligatures upon the funis of the delivered child, and cut between them; as the cut extremity in such cases yields a good deal of blood sometimes; and occasionally it is said, even to the exhaustion of the second child. We should never attempt the delivery of a placenta, until both children are born.

1373. This bleeding may happen where both funes belong to one placenta, or where the two children are supplied by one original cord, branching some distance from the placenta to furnish a funis to each—and, as we cannot beforehand ascertain such deviations, it is best to guard against the chance of mischief by the application of a ligature; this may be removed after the birth of the second child, that it may discharge some of the blood contained in the placenta, for the reasons before stated (506.)

1374. The delivery of the placentæ of twins must be conducted upon the same general principles, as if there were but one—but rather more time should be given, and caution exercised in twin cases; because, the uterus has been more distended during gestation, and more severely exercised sometimes during parturition than with a single birth: consequently, the tonic contraction will be more slowly and reluctantly performed, and the woman more exposed to flooding. Brisk frictions should be immediately instituted, and sufficiently persevered in, to insure the object for which they were employed.

1375. When the tonic contraction of the uterus is confirmed, we may then, *and never until then*, proceed to the delivery of the placentæ—they will be found either occupying the vagina,

or be beyond the reach of the finger. If in the first situation, they may be extracted by a small force exerted upon the cords, and the aid of a finger introduced into the vagina. If in the second, we must co-operate with the uterine contractions when they exist, by pulling gently, but pretty firmly, by the cords, but not with equal force on each—if we do, we tend to bring both placentaë at the same time to the os uteri; and their united bulks, will not readily pass it—we should therefore act more firmly upon the cord first out, as it is more than probable its placenta is nearest the uterine orifice, and will more easily descend, and at the same time, bring the other with it.

1376. Should no pain aid in the expulsion of the placentaë, we must continue the abdominal frictions, and act occasionally upon the cords, by applying rather more force upon the first, than upon the second, for the reason just stated. (1375) A slight discharge of fluid blood, or small coagula, almost always announces the descent of the placenta; this is equally observed when there are two; and when we find this taking place, we must continue a gentle tractive effort, until they are lodged in the vagina—from this they must be withdrawn as already intimated. (1375)

1377. Dr. Denman says,* “when the placentaë are separate, that of the first child should not be extracted before the birth of the second child, as a discharge of blood must necessarily follow, and perhaps a hæmorrhage.” This is certainly rational advice; and would be highly useful, were we informed, how we are to know beforehand, when the placentaë exist separately. I have already directed, (1375) that the first placenta is not to be meddled with, in twin cases, until the second is ready for delivery; and with this direction I believe we must rest satisfied; and without ascertaining whether it be separate or not.

1378. Dr. Denman farther says, “if there have been a necessity of extracting the children by art, *it is commonly*, but not universally, necessary to extract the placentaë also by art; but if the placentaë are detained beyond a proper time, *we will say two hours*, after the birth of the second child, it is desirable, though there may be no very urgent symptom, that we should

* Francis's edition, p. 541.

inform ourselves of the cause of this detention, and act accordingly."

1379. The first of these remarks, namely, that the interference of art is necessary to the delivery of the placenta, if it has been necessary for that of the children, is by no means agreeable to my experience; nor do I see the slightest relation between these events; and if acted upon by inexperienced practitioners, as it certainly will be, when advised by such high authority, much mischief will ensue. And to the second, I must again object, as the rule is taken from time; which can never in itself constitute a reason, nor develop a principle; for, as I have upon another occasion remarked, it may be just as improper at the end of two hours to deliver the placenta as it was immediately after the delivery of the last child.

1380. If artificial means be resorted to, care should be taken that both placenta are detached if they exist separately, or if they be merely joined by membrane; if there be but a placenta, it must be removed, as upon all similar occasions.

1381. In cases of twins, a much larger surface is occupied by the placenta than if there were but one; we should on this account be very careful to renew the frictions upon the abdomen, after their expulsion, that the uterus may contract as much as possible; and thus tend to diminish the subsequent discharges, which are but too apt to be in excess.

CHAPTER XXXIV.

OF PRETERNATURAL LABOURS.

1382. AGREEABLY to the classification I have adopted for labours, it will be at once understood, that the class termed preternatural, will consist of all such, as shall not present either the head, the breech, the feet, or the knees. Authors have made a very numerous collection of such cases; many of which occur so rarely, as to be seldom or perhaps never met with, even by an old and experienced practitioner.

1383. Baudelocque has been too lavish, in his divisions, and subdivisions of this class of labours; for they serve rather to confuse, than to elucidate. To the inexperienced practitioner, his distinctions are appalling; since, they cannot well be retained; consequently, his rules cannot be rigidly acted upon. But, there can little injury arise from this want of memory; provided, the general principles which are to govern in such cases be recollected; for they are all to be treated by "turning."* If, then, the principles laid down for this operation be well recollected, little or no embarrassment can present itself.

1384. It may, however, not be amiss to remind the inexperienced practitioner, of several of the most important rules upon the operation of "turning."

1385. 1st. This operation must never be attempted, so long as the os uteri is not dilated or easily dilatable.

1386. 2d. That the woman must be placed upon her back, that the utmost freedom may be given to the operator's hands.

1387. 3d. That the time for the introduction of the hand into the vagina, is during a pain, after having been well lubricated.

1388. 4th. But after the hand is in the uterus, every attempt to turn must be made in the absence of pain.

1389. 5th. That it is rarely a matter of indifference, which hand is to be employed for the purpose of turning; therefore, the rule upon this subject must never be violated.

1390. 6th. That whatever be the situation of the child within the uterus, the feet must be brought into the pelvis, so as to bend the body forwards. See Chap. on "Turning."

1391. I shall, however, select one case of "preternatural labour," from the general class; because, it is by far the most frequent, as well as the most difficult—this case is the "presentation of the arm and shoulder."

* Except such cases, as leave no doubt of the death of the child, and which may be terminated by the crotchet.

CHAPTER XXXV.

OF THE PRESENTATION OF THE ARM AND SHOULDER.

1392. SHOULD the hand descend into the pelvis, either by not keeping it up as directed, (686) when it accompanies the head, or any other part; or when it seems to fall into that cavity at the time the membranes give way; it will almost always become a source of trouble; especially, if under the care of a practitioner, who supposes, he cannot do better than to act upon it, to effect delivery. When the hand is not supported, so as to allow the head to descend without it, the arm is almost sure to come into the passage; this frequently, but not necessarily, declares the shoulder, at the orifice of the uterus.

1393. Or the shoulder itself may present originally, without the hand being down, as a necessary consequence. This presentation is more frequent than any other, in which the head, knees, feet, or breech, do not present. The roundness of the shoulder favours its taking this position.

1394. I have chosen to consider under one head the presentations of the shoulder, and the arm; because, the indications are precisely the same, as well as the mode of acting; for the arm itself produces no essential difference in treatment.

1395. Before the mouth of the uterus is well opened, and the membranes are rent, it is difficult to distinguish the shoulder; but when these changes have taken place, the clavicle, scapula, and ribs, serve to point out this part.

1396. The shoulder may present in four different ways at the superior strait; but these positions become very difficult to distinguish, unless the arm be down at the same time. When the arm is down, the hand will serve to discover the position of the shoulder. The hand will offer itself at one of the sides of the pelvis; and its back or palm, will present either anteriorly, or posteriorly: the position of the shoulder must therefore, in such cases, be learnt from the particular situation of the hand.

1397. In the first position of the shoulder, the head and side of the neck of the child will be to the left side of the pelvis; the right arm will then be down; the back of the hand will be anterior, the palm posterior.

1398. In the second, the head and side of the neck will be toward the left iliac junction; the palm of the left hand will then face outwards; the back will look to the posterior part of the pelvis.

1399. In the third, the head and side of the neck will be to the right side of the pelvis; the left arm down, with its back looking outwards, and the palm inwards.

1400. In the fourth, the right arm will be down, with its palm looking outwards, and its back inwards.

1401. If turning be resorted to, it will avail much to employ the proper hand. In the first, and fourth, the right hand must be used; in the second and third, the left.

1402. In performing this operation, the rules I have laid down for turning in general, must not be neglected; that is, the feet must be brought down in such a manner as to bend the spine anteriorly, &c. &c.

1403. The presentations now treated of, are certainly very far from favourable; yet they are by no means so menacing as is commonly represented. If these labours are treated according to correct principles, they offer, under circumstances not complicated by accident, (625) no difficulty beyond what is usually encountered in turning. But if the favourable moment for acting be not taken advantage of, or should not have presented itself, much difficulty may be experienced; and the case become subject to interference, by cutting instruments, &c.

1404. It should be borne in mind constantly, that the arm itself offers no indication, save that of pointing out the position of the shoulder; therefore, no manœuvre performed upon it, can advance the interests of either mother or child, or facilitate the object of the operator. Consequently, all the cruel, as well as absurd treatment to which the arm is sometimes subjected, such as scarification, amputation, &c. should always be avoided; since, it can never improve the prospect of the

operation, if the child be dead; and will most unnecessarily destroy it if living.

1405. In a well formed pelvis, the presence of the arm offers no embarrassment to the operation of turning; therefore, every attempt to remove it from the inferior portion of the pelvis, either by trying to replace it within the uterus, or by amputation, is only losing time, or improperly irritating the parts, or subjecting the protruded part to an unnecessary, and sometimes to a cruel operation.

1406. It is therefore best not to meddle with the descended arm; for if turning be attempted, it offers no difficulty to the passage of the hand; and if the crotchet, or any cutting instrument be resorted to, it cannot interfere with the operation.

1407. The indication in these presentations is, to bring down the feet, and deliver. It has however been suggested, that we may attempt the restoration of the head to the cavity of the superior strait, by removing the shoulder from it: I believe this to be altogether theory. I do not even advise the attempt; for independently of its difficulty, I am persuaded, that it would be attended with more pain and risk to the patient, and injury to the child, than a well-conducted turning.

1408. For the circumstance which would render the restoration of the head to the axis of the pelvis practicable, (if it be practicable,) will also give facility to bringing down the feet; namely, a sufficient relaxation of the uterus, and the absence of pain. Moreover, if these conditions obtain in the first instance, it will of course be very uncertain whether the powers of the uterus will be sufficiently restored, to expel the child, after the adjustment of the head; consequently, much time would be lost, and much anxiety be created.

1409. There are two modes of proceeding in presentations of the arm; the first, as I have just stated, is to turn; the other, to trust to the powers of nature to produce what has been termed the "spontaneous evolution of the child."

1410. When the arm presents in a labour, at the full period of gestation, we should entertain no hope or expectation, that nature will relieve herself, while the child continues in this

position;* consequently, this case must be always regarded as "preternatural;" and, that bringing the child by the feet, is the only operation that can be performed with a view to the safety of both mother and child.

1411. Notwithstanding the indication in this case is so obvious, yet it is not *always* practicable to fulfil it. This arises from, 1st, the condition of the uterus; and 2d, from the situation of the arm and shoulder within the pelvis.

SECT. I.—*Of the Condition of the Uterus.*

1412. I have already noticed above, that the protruded arm or hand, offers of itself, no difficulty to turning; the difficulty exclusively depends upon the condition of the uterus; and especially, of that of its mouth. If both be in a state of relaxation, so as to admit without much force, the passage of the hand, as often happens, soon after the escape of the waters, where the labour has progressed regularly, no more, or perhaps sometimes even less difficulty will be experienced than in turning, when the head presents, and the uterus is equally favourably disposed.

1413. Our attention should therefore be constantly directed to the state of the uterus, and of that of the neck especially; and our conduct should be regulated alone by their condition: for whatever may be our desire to aid the suffering woman, or relieve the threatened child, we must never incur the risk of being disappointed in both, by forcibly entering the resisting os uteri. When violence has been committed on this part, by mechanically making it yield to the hand, inflammation, laceration, and gangrene have sometimes followed; nor is this all: the operator has not only been foiled, in his attempt to bring down the feet, by the os uteri contracting itself round his wrist, and thus obstructing the descent of the child. I once witnessed death to follow immediately, or rather during a rude attempt to turn. The operator had with great difficulty passed her hand (the patient was under the care of a

* Unless the rare occurrence of "spontaneous evolution" may be considered as an exception

midwife) through the os uteri; and after a long and uncertain search, became possessed of the feet: in attempting to bring them down, she exerted so much force, as to rupture (I believe*) the uterus. The poor woman expired in about five minutes after I entered the room, and while the midwife was still exerting all her force upon the legs of the child. The persons present informed me, that after the midwife had learnt I had been sent for, she declared it was unnecessary, as she "could deliver the woman as well as any body"—she therefore redoubled her exertions, to make good her assertion: the consequences I have just related. She was most industriously at work for more than an hour.

1414. The midwife told me, that "the arm had been down many hours, and the pains were very strong"—but added, "notwithstanding this, the child did not come nearer the world; I therefore determined to wait no longer, and proceeded to turn, as I had several times done in like cases. The mouth of the womb was close round the arm of the child; but I did not mind this; for I got first one finger in it, then another, and at last my whole hand. But indeed, doctor, this was hard work. When I got through, I never was so long finding the feet; but all my strength could not make them come down; and the poor woman died, because I did not begin sooner." I took this poor ignorant creature aside, and frankly told her, she had destroyed her patient; and exacted, on pain of exposing her, a solemn promise, that she would never attempt the like operation again.

1415. Therefore, where the mouth of the uterus opposes the *easy* introduction of the hand, it should never be attempted; in such case, it will almost always be found, if the waters have been long drained off, that the tonic contraction of the body and fundus, will also offer much difficulty to turning. This being the situation of the patient, nothing can justify the at-

* This belief is founded on what occurred during this attempt to turn; namely, a slight hæmorrhage from the vagina; sickness, and vomiting, &c.; cold clammy sweat—of the pulse, I can say nothing; it was extinct when I saw the patient—the attendants of course could give no account of it, and the midwife was too much occupied by her operation to examine it.

tempt to turn; for one of the following consequences will almost certainly follow: 1st, if the hand be made to pass the stricture, it will be at the expense of so much injury to the neck of the uterus, that the one or other of the evils stated above will follow. 2d. If the hand be made to pass the constricting os uteri, the body and fundus will offer so much resistance, as to defeat safe turning to the child; or 3d, if the child be safely delivered, it may be at the expense of the life of the mother.

1416. It would then seem to follow, that this condition of the os uteri, as well as of the body and fundus of this organ, must be changed before any attempt be made to bring down the feet of the child. With this in view, we must induce such a state of relaxation, as shall enable the hand to pass, and the turning to be performed, without the risks stated. This can be almost certainly effected, by a sufficient loss of blood. With a view to exemplify the practice in this case, I shall relate a case from my "Essay on the Means of lessening Pain," &c. in which this remedy was successfully employed.

1417. "1802, January 29th, Phæbe Hall, a black woman, in labour with her seventh child; arm presented, and down for several hours; arm considerably swelled, as the midwife had exerted considerable force upon it; the mouth of the uterus contracting closely round it. I got Dr. Carter (a gentleman who accompanied me) to introduce his hand into the vagina, and place a finger within the os uteri—this he did with some difficulty, as the uterus was very rigidly closed upon the arm. I tied up her arm, and let her bleed until he should tell me the mouth of the uterus was sufficiently dilated. When I had drawn from forty to fifty ounces of blood, she became sick and faint; at this instant, Dr. Carter cried out with rapture, that the uterus was sufficiently dilated—upon my examining, I found it to be the case; the turning, and delivery, were soon accomplished."

1418. It must be observed, that such labours as are attended with fever, always require the loss of considerably more blood, than when none attends; and it has been found best, in such cases, to draw the blood at two or three operations; but carry-

ing the last to faintness, or sickness. Now, the labours in question are almost always accompanied by fever, if they have been long protracted ; consequently, will frequently require the adoption of the plan just proposed.

SECT. II.—*Of the Situation of the Arm and Shoulder within the Pelvis.*

1419. The situation of the arm and shoulder within the pelvis, may be such as to render turning, if not impracticable, at least unsafe.

1420. The arm, to the very shoulder, may be protruded through the os externum ; and the shoulder itself so impacted, and the contraction of the uterus so firm, as to render it impossible to turn, with any prospect of success to the child, or safety to the mother. Our conduct, in this situation of things, must be regulated altogether by the condition of the child ; and this will be either living, or dead. It must therefore be ascertained in which of these states it may be, before we decide on the mode of acting.

1421. With a view to determine this, the hand should be passed into the uterus, until it can reach the umbilical cord—if this be pulsating, the child is of course living ; if it have no pulsation, the child is certainly dead.

SECT. III.—*The Manner of Acting, if the Child be living.*

1422. Having ascertained the child to be living, our conduct should be such, as to give it the best possible chance to be delivered alive. The choice of means will lie between turning, and waiting for the spontaneous evolution of the child. As regards turning, it must not be disguised, that it is an operation of some hazard to the child, even under the most favourable circumstances of the uterus, or position of the child ; and of course, the risk will be in proportion to the departure from these best conditions : yet it offers, in this case, almost the only alternative.

1423. In the situation of the parts in the presentation now under consideration, two difficulties will necessarily present

themselves; 1st. The uterus will be found firmly contracted on the body of the child; so much so, sometimes, as to render it almost impracticable to turn; or at least, it would be hazardous, unless the operation be very carefully conducted. In such a case, it should not be attempted, but with the utmost caution; and not without previously endeavouring to diminish the resistance of the fundus and body of the uterus, by free blood-letting, as just proposed for the rigidity of the os uteri, when it creates the difficulty. After the patient has been liberally bled, the opposition to turning is sometimes so much diminished, as to render the operation not only practicable, but safe even to the child. Should the blood-letting procure no relaxation, the case becomes a forlorn one; especially, for the child.

1424. We should not, however, for this reason, abandon the poor woman to her fate; for even under a severe contraction of the uterus, a well directed gentle force will overcome difficulties, that at first appeared insurmountable; especially, sometimes, after a liberal dose of opium. If the practitioner be inexperienced, he should, if possible, call to his aid a more skilled operator. He should never attempt to overcome, by force, the difficulties which oppose him; a proper exercise of patient address, should ever govern in such cases, if he mean to succeed.

1425. Secondly. In consequence of the firm contraction of the uterus, the shoulder, we are told, is found so tightly wedged in the inferior strait, as sometimes not to permit the slightest motion upwards. I will not say, that this is never the case; but I must declare, it seldom happens, unless the proper time for acting has been lost, either reprehensibly or unavoidably. So far, I have never met with a case, in which I could not turn, if turning were the desirable mode of acting: but this has arisen, perhaps, from carefully watching the proper moment for the operation.

1426. In these cases, the proper moment to act, is, so soon as the os uteri is sufficiently relaxed to permit the passage of the hand; and if this relaxation does not take place spontaneously, it should be procured as early as the nature of things will permit, by blood-letting and opium; and this as soon after

the escape of the waters, as practicable. If the case has been mismanaged, before a judicious practitioner has been consulted, he may not perhaps be able to terminate the labour by turning, with any prospect of success to the child; he is then to consult the interest of the mother alone; and this will perhaps be best advanced by waiting, so long as the child may continue to live.

1427. But should any accident complicate the labour, and render immediate delivery proper, he should try to relieve the patient by turning, though it offer but a bad chance for the preservation of the child's life. If this be impracticable, (a circumstance, I am warranted in saying, of rare occurrence,) he must relieve the mother at the expense of the child, as will be directed presently.

1428. The only other resource which presents itself for the preservation of the child, is the waiting for what is termed the "spontaneous evolution of the child."

SECT. IV.—Of *Spontaneous Evolution*.

1429. Dr. Denman, I believe, was the first to notice this remarkable resource of nature, in shoulder or arm presentations. He enriched the profession by his history of it, and by instructing the practitioner, that in some instances, nature achieves, with even safety to the child, that which art could not perform. His explanation of this phenomenon is certainly ingenious, and was for a long time the received one; but it appears to have yielded to that of Dr. Douglass, even by the confession of Dr. Denman himself. See Dr. Douglass's *Essay on Spontaneous Evolution*.

1430. This chance for the preservation of the child, is, however, of extremely rare occurrence; for in by far the greater number of instances of "spontaneous evolution," the child has been expelled dead. Indeed, the delivery of the woman, by this change of position of the child, is in itself very rare. I have never seen a case. Yet the testimony on this point is conclusive, and will justify us in considering it a chance for the child.

1431. I say, chance for the child ; for such only should it be considered ; for if the child be dead, we have no longer terms to keep with it, and our attention must be directed to the mother. I should, therefore, recommend waiting for this “spontaneous evolution,” whenever turning forbade the hope of saving the child ; provided, the labour was complicated by no accident ; (625) but if the child be dead, and this ascertained as directed,* we should not wait for the uncertain event of “spontaneous evolution.”

SECT. V. *Mode of acting, if the Child be dead.*

1432. If it be ascertained, that the child is dead ; and it should be impracticable to turn, we must attempt the delivery of the child, by the use of instruments. The instruments necessary for this purpose, may be, the scissors, and crotchet, or simply the blunt hook. Before, however, either is employed, the uterus should be either dilated, or dilatable ; and this will almost always be found the case, where the shoulder is forced down to the os externum.

1433. In this situation, we can always command the thorax or abdomen of the child ; either of which may be penetrated by the scissors ; and these aided by the crotchet, or blunt hook.

1434. It has been usual, it would seem, in cases where turning was impracticable, to wait for the “spontaneous evolution” to take place ; but I would not recommend this plan, when it was certain the child was dead ; and for these reasons ; 1st, this “evolution” is not certain to take place ; 2d, if it do not, we certainly expose the woman to much suffering ; and perhaps even to danger, for the hope of a favourable contingency.

* It must be recollected, we can pass the hand to the umbilicus of the child, when it might be impracticable to turn.

CHAPTER XXXVI.

OF THE RUPTURE OF THE UTERUS.

1435. DURING labour, the uterus every now and then is ruptured; and, perhaps, even oftener than at present I dare assert—sometimes this accident is concealed from ignorance; and at others, from design; hence, many cases must occur of which the public remains uninformed. Nothing can justify the concealment of this event, though we can promise ourselves but little by the avowal; but it is a duty we owe the connections of the unfortunate woman, as well as the profession itself. Concealment often arises from a previously adopted theory upon this subject; and the supposed risk of professional reputation; than which, nothing can be more disingenuous, or hypothetical. I would, in one word, in all such cases, recommend its most speedy avowal, to those immediately concerned in the event; and must declare, I should consider the contrary conduct, as highly derogatory to the honourable feelings which every medical practitioner should be possessed of; as well as doing serious injury to the advancement of obstetrical knowledge.

1436. In treating this subject, I shall, first, consider whether it be proper to attempt any thing for the woman's relief, as there is much authority against it; and because it is constantly made the plea, for the concealment of this accident; second, I shall take into view the variously reputed causes of it, with their mode of action; third, detail the symptoms and consequences of the rupture; and fourth, indicate the mode of proceeding, under the various circumstances with which this accident may be complicated.

1437. Dr. Hunter considered any attempt to relieve a woman who had suffered a rupture of the uterus, as cruel—therefore it was not to be attempted. This opinion was afterwards more strongly enforced by the late Dr. Denman, who declared, that “when the uterus is ruptured at the time of labour, both rea-

son and experience show, that the patient has a better chance of recovering, by resigning the case to the natural efforts of the constitution, than by any operation, or interposition of art."

1438. I consider this assertion of Dr. Denman, rather in opposition both to "reason and experience;" to reason, because it would be a natural suggestion, that that woman's chance would be best, from whom many of the causes were removed, that would hinder recovery, by the delivery of the child, &c.; and to experience, because we have the most unequivocal proofs of recovery upon record, where "the interposition of art" was resorted to.

1439. Thus Heister,* Douglass,† Hamiltons,‡ Ross,§ Kite,|| Madame La Chaple,¶ relate cases of entire recovery after the delivery of the child, through the natural passages; while Hamilton,** Thibault,†† Lambron,‡‡ &c. give others of equal success, where gastrotomy had been performed. In all of these, however, the success was confined to the mother; the child was uniformly dead—but I have strong reason to believe, that this was entirely owing to the delay before the operation was undertaken. Indeed, Burton§§ renders this almost certain, by the relation of a case which fell under his notice; in this, the child was delivered alive, though the mother died; while Mr. Haden relates an instance of the preservation of both mother and child.|||

1440. Thus, we can most successfully destroy Dr. Denman's celebrated aphorism on the subject of the rupture of the ute-

* *Instit. de Chir.* tom. II. p. 137.

‡ *Outlines*, p. 344. *MS. Lectures*.

|| *Mem. Med. Soc.* Vol. IV. p. 253.

** *MS. Lectures*.

‡‡ *Baudelocque*, Vol. III. p. 430.

† *Essay on Rupture of the Uterus*, p. 7.

§ *Annals of Med.* Vol. III. p. 377.

¶ *Annuaire Med. Chir.* tom. I. p. 542.

†† *Jour. de Med.* for 1768.

§§ *Syst. of Mid.* § 43, p. 110.

||| Dr. Davis relates a case of the rupture of the anterior portion of the uterus, from which the patient recovered in about six weeks. In this case, the child was delivered by the craniotomy forceps, after having its head opened by Smellie's scissors. The neck of the bladder was so severely injured, from its connection with the portion of the uterus injured, as to prevent her retaining her urine ever after. This case, though unfortunate as regards the last named injury, is nevertheless a case in point, to show that the woman may recover after the uterus has been lacerated.

rus, by producing cases, in which the “interposition of art” was followed by success. This, I think, should put the matter to rest; especially, as there is no instance extant, at least with which I am acquainted, where the woman recovered at the full period of utero-gestation, when the child was permitted to remain undelivered.

1441. There are a number of instances upon record, which purport to be recoveries, after the rupture of the uterus, where the fœtus was permitted to remain in the abdomen—but they are liable to strong suspicion, and far from standing the test of rigorous examination; they appear to be cases of extra-uterine conceptions chiefly, or of but the partial rupture of the uterus. By partial rupture, *I mean, where the muscular substance of this organ has suffered laceration, but where the wound does not pass through its peritoneal coat.* Of this kind are the cases related by a writer in the Jour. de Med. for 1780, also those by Drs. Bell and Sims.* Dissection proved in several of these cases, that the peritoneum suffered only from distention. From all that I can learn from others, or my own experience, I cannot see any reason for withholding aid from the afflicted woman, who may have suffered this calamity—except, indeed, in that forlorn condition of the patient, where she would die before this aid could be given to her. But what can we promise ourselves, by not attempting delivery? for I must again repeat, there is no instance of recovery at full time, from a rupture of the uterus, where the fœtus was permitted to remain in the abdomen of the mother—nor should the opinions of Dr. Hunter, Dr. Denman, and Mr. Burns, be considered sufficient authority in such cases, to screen from reprehension any one who may have neglected an opportunity to discharge what I consider his bounden duty, by delivering his patient instantly, if practicable, when she has suffered a laceration of the uterus.

1442. Indeed, the objections of Dr. Denman are not entitled to the smallest weight upon this point; since he is entirely at

* See Essays on Subjects connected with Midwifery, where this subject is treated at large. (p. 201.)

variance with himself. In his "Introduction to Midwifery,"* he appears to have entertained rational and liberal views upon this subject; he there tells us, that, "beside some few others (cases of rupture) of which I have been informed, or which are recorded, a case has occurred to my very *worthy, able, and experienced friend Dr. Andrew Douglass*, in which the uterus was ruptured; he turned the child, the patient recovered, and had afterwards children." And Dr. Denman observes upon this case, "if no other case had ever occurred, I apprehend this would be sufficient authority to render it in future, the indispensable duty of every practitioner to act in a similar manner; and bad as the chance is of the patient, to be strenuous in using all the means which art dictates to extricate her, if possible, from danger, or to preserve the child."

1443. Dr. Denman has by no means satisfied me, or perhaps any one, why his sentiments underwent a change upon this subject; and the more especially, as it is a change to be considered as unfriendly to the cause of science, and to the interests of humanity—it seems he has drawn a conclusion upon this point, that satisfied himself; though totally gratuitous, in the estimation of every body else; namely, "that there are more instances upon record of recoveries of women who have not been delivered, than those who have been delivered after rupture of the uterus."

1444. Were this position of Dr. Denman founded really in fact, it would deserve the most serious consideration; but as strong doubts must be entertained upon this point, it has not changed my opinion; first, because the subjects of comparison are not equal; as very many more women have been suffered to remain undelivered after rupture, than have been delivered; consequently, a conclusion cannot legitimately be drawn; as the proportions they bear to each other cannot be known; second, because I deny that there is a well-attested instance of the woman's recovery, when she was permitted to remain undelivered.

1445. From all I can collect from the histories of cases of ruptured uteri, it would appear, that life is prolonged and suf-

fering abated, by delivery;* it therefore involves a great moral question; and, if the facts be as I have stated, and as I most seriously believe them to be, it must resolve itself into inculcating it as an obligation, that we deliver whenever practicable, after the uterus has suffered laceration.

1446. Upon a comparison of an equal number of cases delivered after rupture, with those not delivered, it was found, that the women who were delivered, lived much longer on the average, than those who were not delivered; now, if death be suspended by our efforts, it will follow, it becomes a duty to make them; and, if we add to this, what has been very confidently asserted, that there is no instance of recovery where delivery has not been performed, this first part of my inquiry, must be terminated by declaring, it is almost always proper to interpose art, in cases of ruptured uteri.

1447. Very many causes are assigned for the rupture of the uterus; some of which appear totally incompetent, while others of powerful agency, are but slightly glanced at. La Motte believed that the struggles of the child, were capable of this accident; hence, by him, they are enumerated as a cause. In this he has been followed by Levret and Crantz—indeed I may say some late writers. But the child is almost always passive when the accident happens;† and I may add, in proof of this, that the uterus has given way, after the death of the child.

1448. Dr. Denman‡ says, “the uterus may, independently of disease, be mechanically worn through in long and severe labours, by pressure and attrition between the head of the child, and the projecting bones of a distorted pelvis; especially, if they be drawn into points or a sharp edge.” To this doctrine I cannot subscribe; first, because, before the membranes are ruptured, the head cannot rest with sufficient firmness against any given point to produce the necessary degree of “attrition;” second, that after the evacuation of the waters, the body of the child is so firmly embraced by the contracting uterus, that “at-

* See Essays on various Subjects connected with Midwifery, p. 227.

† Baudelocque. ‡ Introduction, p. 105.

trition" cannot take place; third, there could not be sufficient friction generated between the smooth surfaces of the child's head and the uterus to produce it; fourth, in such cases the child's head should also exhibit marks of this "attrition," yet of this no mention is ever made.

1449. Salmathus, agreeably to Mr. Burns, considers a "thinness" of the uterus as a predisposing cause of rupture—but we have no evidence in any case whatever of this "thinness" existing as an original conformation of the uterus before the rupture took place—if it be found thin, post mortem, it may be occasioned from mere exhaustion of blood, and not be an original condition of this organ. Mental agitation and frights are also said to occasion rupture of the uterus; but strong doubts should be entertained of such causes.

1450. I shall, therefore, pass without notice many causes reputed capable of causing this accident; and consider only such, of whose agency no reasonable doubts can be entertained. I shall divide these, first, into those which act directly upon the uterus; second, those which have an indirect influence.

1451. The first may be considered mechanical violences; and may be both external and internal. The external may be blows, kicks, or violent pressure; the internal may be, ill-conducted attempts to turn the child; the attempt to return a prolapsed limb; the mal-adroit use of instruments; or the unequal surface of the child itself.

1452. The second, or indirect, are such causes as may have a tendency to injure the continuity of the uterus by mechanically impeding the passage of the child; as a contracted pelvis; an unusual sharpness in the linea ilio-pectinea; exostoses, tumours, scirrhi, and ulcers.

1453. The action of these two sets of causes are different; the first act directly, by exerting a force beyond the resisting power of the uterus; the second, by diminishing the strength of a *particular portion* of this viscus, so that its own contraction may be sufficient to overcome the resistance which this weakened part offers.

1454. The mode in which the first set of causes acts, is sufficiently obvious without further explanation. The second is

not so clear, yet of most easy explanation. The head of the child, covered by the uterus on all sides, cannot, in a contracted pelvis, readily engage in the opening of the superior strait; it must, therefore, rest for a long time stationary, or nearly so, at its margin—if this be sharp, or projecting, the uterus will suffer in proportion to the weight of the child, the force of the contractions of the uterus, and the period it may suffer this compression—inflammation ensues; and, if the cause be not soon removed, gangrene will follow; when the uterus is thus weakened, it will be easily understood how a small force may rupture it.

1455. The second set of causes acts by preventing a regular development of the different portions of the uterus during pregnancy; consequently, one portion or other is put unduly upon the stretch, and of course weakened; and, by its remaining passive during labour, by being diseased, it cannot resist the efforts of the healthy portions. When the action of the uterus itself is the cause of the rupture, it always takes place at the moment of the greatest severity of pain.

1456. This accident may happen to any portion of the uterus, or in any direction; or at its connection with the vagina—it may be more or less extensive; and the child with its appurtenances may pass entirely, or partially, into the abdominal cavity.

1457. When this accident happens, it almost always declares itself by such symptoms as cannot well be mistaken. I shall now consider those symptoms, under the third division of our subject.

1458. Crantz, Levret, and others, have supposed that the rupture of the uterus might be foretold by premonitory symptoms; but I am very certain that few things can be more equivocal than the symptoms pointed out by Crantz; namely, that, “when a woman is threatened with a rupture of the uterus in a laborious labour, the belly is very prominent and tight; the vagina lengthened, and the orifice of the uterus very high; the pains are strong, leave little interval, and do not advance delivery.” I have seen all these symptoms in their most exalted form, without the labour terminating by rupture; and in Mrs.

M.'s case, which fell under my notice, and of which I have given a detail,* "strong pains with little interval" were not among its precursors; though a very extensive laceration of the uterus took place. M. Levret has added to these symptoms, but without increasing their certainty, "that the pain the woman suffers, is always seated towards the middle of the epigastric region; that a last effort or violent leap, succeeds to the repeated strugglings of the child, which announces its death and the rupture of the uterus."

1459. Did the signs just detailed, portend a rupture of the uterus, every laborious labour would be threatened with one—every symptom enumerated above, is almost the necessary effect of the tonic action of the uterus, after the evacuation of the waters; yet fortunately for suffering woman, this accident is of comparatively rare occurrence.

1460. The signs added by Levret are frequently witnessed, without a rupture supervening; and it has occurred, where these marks were absent—it is also well known, that the uterus has given way after the death of the child;† I therefore perfectly agree with Baudelocque, "that the rupture of the uterus has often taken place without being preceded by any of them, and has not happened in other cases where their union declared it inevitable." The conclusion from this must be, that it would be extremely hazardous to act upon the presumption, that a rupture of the uterus was about to take place, because of the presence of several of the symptoms just mentioned—who could justify the employment of the forceps, or crotchet, or perform the difficult and oftentimes dangerous operation of turning, upon a mere surmise that this accident might take place?

1461. I have said enough, I trust, upon the uncertainty of any sign or signs that would announce a rupture to be at hand; I shall therefore pass to the enumeration of the symptoms which declare it, after it has taken place:

1462. The woman feels for the most part, an acute pain at the place where the rent happens—she generally cries out, and

* See Essays on Subjects connected with Midwifery, p. 238.

† Annals of Med. Vol. III. p. 293. 303.

declares that something terrible has happened within her—the rupture is said sometimes to be accompanied by a noise which has been distinguished by the bystanders—a discharge of blood of greater or less extent takes place from the vagina—her face becomes cold and pale—her respiration hurried—she is sick at stomach, and most frequently vomits—the matter discharged is sometimes the common contents of the stomach, at other times it consists of a very dark, even black coloured substance, resembling coffee-grounds—the pulse is extremely frequent, small, fluttering, or extinct—she complains of a mist before her eyes, loss of sight, and extreme faintness—a cold clammy sweat bedews the surface of the whole body, and if not speedily relieved, convulsions and death follow.

1463. These symptoms are however modified by several circumstances: 1st, whether it be the uterus itself, or its connection with the vagina, that may be ruptured; 2d, whether the child has escaped in part, or entirely into the cavity of the abdomen; 3d, whether the lesion has passed through the substance of the uterus alone, or has penetrated the peritoneum.

1464. 1. When the rupture has taken place either in the body or neck of the uterus, the pains either cease, or slacken so much as not to propel the child if it be still retained within the uterus.

1465. 2. When the child escapes entirely into the cavity of the abdomen through the torn uterus, the most distressing and alarming symptoms quickly follow—if but partially protruded, pain may effect the delivery of the child, or it may be extracted by art.

1466. 3. Should the wound stop at the peritoneal covering of the uterus, and not penetrate the abdomen, there is reason to believe, that the symptoms will not only be milder, but the chance of recovery increased.

1467. However strongly and decidedly marked the symptoms which accompany rupture may be, they are not exclusively to be relied on—but when they have excited suspicion, by their severity and character, we should lose no time, before we ascertain it—this is to be done by a careful examination of the abdomen and the uterus; the first by the application of the hand externally; and the other by the finger or hand per vagi-

nam. Should the accident occur before the rupture of the membranes, the tumour which they formed will shrink away; for, if the rent be through to the abdomen, it is more than probable that the membranes will give way, and the waters be discharged within it; but should the lesion stop at the peritoneum, they may remain entire for some time, though they may not again form a bag within the circle of the os uteri.

1468. When the abdomen is examined by the hands externally, the fœtus, if the rupture be complete, may readily be distinguished through its parietes; if the fœtus cannot be thus detected, it is presumable it has not escaped entirely from the uterus—but we are to ascertain this by a careful and more extensive examination.

1469. If the accident take place after the discharge of the waters, the presenting part will either recede beyond the reach of the finger, or can be most easily forced back by its pressure (provided the head or presenting part has not already engaged in the pelvis)—if the former obtain, the hand should be introduced, and the nature of the case clearly ascertained—should the os uteri be well dilated or easily dilatable, the hand should be passed into the cavity of the uterus, so that the extent of injury be well understood. But should the os uteri be firmly contracted, so as to refuse admission to the hand, without the application of much force, the point should be given up; for nothing can justify a violent entry into the cavity of the uterus.

1470. When the laceration takes place at the neck of the uterus, or at its union with the vagina, the child, with its appurtenances, almost always pass into the cavity of the abdomen; in either of these cases, the presenting part will immediately remove itself from the superior strait; when this happens, we should, as quickly as possible, ascertain whether the accident has taken place, of which this circumstance would instantly give the suspicion. In cases like these, the examinations to this effect are more easily conducted, than when the body or fundus is the subject of the laceration; as the parts involved in the mischief, cannot contract like the uterus itself—the uterus, under such circumstances, will be found, for the most part, firmly contracted either on the posterior or anterior por-

tion of the pelvis, as it may happen to be the posterior, or anterior portion of the vaginal circle, that may have sustained the injury—the intestines will frequently prolapse through the wound, which removes at once all doubt as to the nature of the accident—it is almost needless to suggest the propriety of a cautious and gentle examination, after the hand has entered the abdomen.

1471. When the nature of the accident is ascertained, it behooves us immediately to attempt the relief of the unfortunate woman; and the means for this purpose are, first, to attempt delivery per vias naturales; and second, to perform the operation of gastrotomy.

1472. We may perform the first, whenever the neck, or its union with the vagina, is the seat of laceration, provided the pelvis is of a good conformation, and the child has escaped in the cavity of the abdomen—the feet of the child should be sought for, and the delivery accomplished as in a case of turning—but should the pelvis be so contracted as not to permit the child's head to pass, this mode of delivery must be changed for the second. Should but a portion only of the child have escaped through the rent, and the head be engaged in the pelvis, the forceps should be used; or, if we are certain of the child's death, the crotchet may be employed.

1473. When either the body or fundus, or both, have suffered, and the child has escaped into the abdomen, the delivery per vias naturales may be either difficult or impossible, even in a well formed pelvis; for the uterus will most probably contract itself so much, as to render the re-passage of the child impracticable; the only chance, in this case, is the immediate performance of gastrotomy; should a contracted pelvis complicate this case, the latter operation is the only alternative. But should the uterus remain flaccid, and its mouth yielding, and the pelvis well-formed, we may succeed, though with difficulty, through the natural passages—but if this flaccid state of the uterus be attended by a deformed pelvis, the abdominal section is the only resource.

1474. Should the vagina alone suffer, and the child pass into the abdomen, we should deliver by the natural passages, pro-

vided the condition of the pelvis will permit: if it should not, gastrotomy must be had recourse to.*

1475. The operation of gastrotomy, I believe, is one, which has never been performed in this country, for rupture of the uterus; but there is no reason why it should not, when circumstances are sufficiently imperious—we have the experience of the European surgeons in its favour; and, however appalling it may appear, when viewed merely as an operation, it nevertheless would seem to add but very little additional suffering, to the unhappy woman.†

1476. But to derive advantage from this operation, “it should be performed as quickly after the accident as possible, while the patient still retains strength; and the incision should always be made on the side of the abdomen, which corresponds with the rupture of the uterus,”‡ if practicable, or I may add, if that side can be detected. Should either the anterior, or posterior portion of the uterus have yielded, the child would most probably be in the middle of the abdomen, (provided the woman had not changed her position after the accident,) in which case the incision would perhaps be best made in the *linea alba*, as if the Cæsarean section were about to be performed.

1477. Dr. L. Frank relates the following interesting, though rather too generally described case, in which gastrotomy was successfully performed:—

1478. “Angela Grossi, of Parma, aged forty-four, had borne five children, and had reached the ninth month of her sixth pregnancy, without the occurrence of any accident. On the morning of the 9th of August, 1817, labour commenced; and whilst standing up, she was seized with a faintness, accompanied by vomiting. She was therefore placed on her bed, by the assistance of her husband and midwife. At that moment, she stated that she experienced a feeling of laceration in the abdomen, and also a sensation of there being two children. A sur-

* The reader, if he wish to see this subject more amply treated, may find it in “*Essays on various Subjects connected with Midwifery*,” p. 201.

† Thibaut des Bois, *Jour. de Med.* for 1768.

‡ *Path. Chirur.* tom. II. p. 239, par M. LASSUS.

geon, who was called in, asserted that the effort of vomiting had carried the child upwards; adding, that another might propel it downwards; and advised the patient to remain quiet."

1479. "The midwife, however, remarking that the abdomen swelled, that the vomiting did not cease, and that the breathing became irregular, called in Dr. G. Rossi. On examination, he detected a rupture of the uterus; and on consultation with his father, and other medical men, it was unanimously resolved, to have recourse to gastrotomy."

1480. "Two hours after the occurrence of the accident, the operation was performed by Professor Cecconi, in the left hypogastric region, precisely at the point where the feet of the child were felt. When the incision was made, the child presented with the feet, and was extracted alive, together with the secundines. No bad symptoms are alluded to, and it is stated that the patient was perfectly recovered forty days after the operation. Three years afterwards, she had a seven months' child, which lived a fortnight. After her recovery, a ventral hernia presented itself in the situation of the cicatrix, which, though irremediable, was not productive of much inconvenience."*

* Anderson's Quarterly Journal, Vol. II. No. 8. for Oct. 1825.

PART IV.

ON DELIVERIES PERFORMED BY CUTTING INSTRUMENTS, APPLIED EITHER TO THE CHILD OR MOTHER.

1481. HITHERTO I have been considering labours which could be terminated by the natural agents of delivery; those in which the hand alone could perform it; and those in which it was necessary and proper to employ such instruments as were calculated to preserve both mother and child. I have now to consider those unfortunate instances, in which the labour is impracticable, without either mutilating the child, or subjecting the woman to the Cæsarean section, or the section of the ossa pubis, commonly called the Sigaultean operation.

1482. There are a number of causes which may place an unfortunate woman in the predicament of having her child mutilated, or force her to submit to the alternatives just mentioned. These causes are, 1st. A deformity of the pelvis; 2d. A deformity of the child, or its monstrosity; 3d. Accidental deformity, as hydrocephalus, dropsy of the abdomen, &c.

CHAPTER XXXVII.

I. DEFORMITY OF PELVIS.

1483. THIS subject has already been treated of, (27, &c.) as a deviation from the healthy measurement of the pelvis: I shall now consider the indications it produces. When the deviations are but small, a child may be delivered alive, and at full time; but the labour will be more tedious and painful, if the child be of the ordinary size, than if the pelvis enjoyed its

full and proper proportions. But the variations may be greater, or even at times excessive—the degree, therefore, will necessarily give rise to various modes of terminating the labour by artificial means.

1484. The resources of art, under deformities of pelvis, will be—

- a. Turning.
- b. Forceps.
- c. Cephalotomy.
- d. Cæsarean operation.
- e. Premature delivery.
- f. Section of the pubes.
- g. Regimen during pregnancy.

SECT. I.—*a. Of Turning, in a Deformed Pelvis, as a Means of saving the Child's Life.*

1485. When treating upon this operation professedly, I took occasion to observe, (706) that it was one always of hazard to the child, even in a well-constructed pelvis; à fortiori, that risk must be greater in a contracted one. For this operation to be successful, even under the best management, it will require, that there shall exist a proper relation between the diameters of the child's head, and those of the pelvis; that the waters shall not have been too long drained off; that the breast of the child, and cord, shall not suffer compression; that the head shall not be too long detained; nor the neck suffer too much extension.

1486. To obtain these advantages, requires no very common combination of favourable circumstances; and as these for the most part must necessarily be contingent, it is no way surprising, that this operation should so often fail of success—to all that may be required on the part of the mother and child, to render it even *probably* safe, there must be added skill on the part of the operator; for, without this, very often the child would perish, though the case may have been the most proper, or most easy of performance.

1487. Should the deformity, then, leave less than three inches

and a half in the antero-posterior diameter of the superior strait, we need scarcely look to this operation for success, as regards the child; and when resorted to under such circumstances, it must only be considered as a remedy for the safety of the mother. In this country, indeed, even the diameter just specified, would rarely be sufficient to give promise of success, under the best and most skilful management; for the transverse diameter of the head of the greater part of the children born at full time, would exceed three inches and a half; now, should this diameter exceed this measurement but one quarter of an inch, or even less, it would create a difficulty that would menace the life of the child. I well remember once to have sorely repented the trial, where I judged the small diameter of the superior strait, would certainly have been equal to three inches and an half.

1488. It will, therefore, follow, that turning in a confined pelvis is, and must be, of doubtful efficacy, as regards the child. As one calculated to relieve the mother, or simply for terminating the labour, without taking into view its result on the child, it might in many instances be successful; or, if the practitioner has been debating within himself, the comparative merits of the crotchet or turning, the latter will unquestionably merit the preference; since it gives a chance, though a forlorn one, to the child. But let it be observed, the consideration should have turned upon the employment of the forceps, and not upon that of the crotchet, for this should always be considered as a dernier resource.

SECT. II.—*b. Of the Forceps in a Deformed Pelvis.*

1489. In my general view (730) of the forceps, I endeavoured to prove that their powers were pretty extensive, yet sufficiently limited. That their mode of action (752) was that of a double lever, with a considerable compressive power—that this power, however, could not be successfully employed (749) beyond a certain degree, with safety to the child. That, if more were exerted, it would be at the expense of the bones of the cranium, and the brain of the child; therefore, there was a limit to their

usefulness. In a pelvis where the opening of the superior strait in its small diameter will give three inches, these instruments have been successfully employed; of which, Baudelocque* gives us an example, which not only proves the useful powers of these instruments, but shows the little certainty with which the death of the child is marked, even by the combination of many of the most formidable signs. This case is full of instruction, and should be carefully read.

1490. But when the small diameter of the superior strait has less than three inches, these instruments cannot be employed at the full period of utero-gestation, with any chance of success. To be useful even then, requires that the head of the child shall be of moderate size, and yielding; well situated, and that a skilful hand should apply them.† As, however, they offer a better chance, if properly conducted upon the head, than turning, they should be employed always in preference to this operation, when even a force not to be called great, would be required to make the head pass the superior strait; for the child will suffer less from a compression of the head, than from a severe extension of the neck; which must necessarily happen, when the opening is less than four inches.

1491. It must, however, not be concealed, that these instruments are not safe, under the circumstances we are now considering, but in the hands of a few; and are only rendered so to them, by their superior attainments in their profession, and the long habit of using these instruments. To the inexperienced practitioner, they should be entirely forbidden; not only because they may destroy the child, but also because the mother may be severely, or irreparably injured by their use. Should, however, the defect of size be in the lower strait, and that not

* System, par. 1898.

† “But, inasmuch as we have not discovered the means of applying such pressure to and for the benefit of the child, without, in the meantime, compromising the more important interests of the mother, it should be held as the bounden duty of our art, in the treatment of such cases, (cases with narrow pelvises,) to refrain from all inordinately forcible attempts to deliver with the forceps.” (Elem. Oper. Mid. p. 140.)

excessive, the forceps will every now and then answer a valuable end, as the following case will prove:—

Mrs. — had been in labour nearly six-and-thirty hours, with a first child; the early part of her labour had been slow, but regular in its progress. The midwife to whose aid I was called, informed me, that the waters had been discharged after the uterus was well dilated; the pains had all along been good; that the child was *very low*, and seemed every moment *ready to come*, yet did not advance; for so soon as the pain ceased, it flew back to its old place, and had done so for many hours.

The woman was in good health and spirits, notwithstanding the length and severity of her sufferings; she was free from fever; had had her bowels opened, and passed urine but a short time before my seeing her—she was short of stature; waddled when she walked; and was very bow-legged. Upon examining her, I found that the lower strait was defective in its small diameter; the tubers of the ischia approached too much, and thus did injury to the arch of the pubes also. I waited for a pain to determine its influence—the head was well situated, but could not descend low enough to enable the vertex to pass under the arch of the pubes; it was, therefore, found rather mounted behind it. The head did not appear large, and its bones were supple.

When a pain came on, the parietal bones rode over each other, and the scalp was pushed considerably in advance. I waited to try the influence of two or three more pains; but the head only advanced during their action; for so soon as this ceased, it raised upwards, as it had done for a long time, as stated by the midwife. The cause of the delay was obvious—the parietal protuberances could not be forced by the uterus, below the tubers of the ischia, that the head might pass through the external parts. I was of opinion that nothing could relieve the head from its perilous situation but the forceps; accordingly, I made it known to the friends of the patient, and subsequently to the patient herself—she cheerfully acquiesced in the decision; they were applied, and by merely maintaining the ground gained by each uterine effort, without exerting much tractive force, I succeeded in half an hour to deliver the

poor woman of a living female child. The head was elongated to an unusual degree; but it recovered its natural shape in a few days.*

SECT. III.—c. *Cephalotomy.*

1492. This operation destroys the child, with a view, it is said, to save the life of the mother; by preventing her from dying undelivered, or subjecting her to the Cæsarean operation. Dr. Osborn has treated this subject under two distinct heads: He inquires, 1st. "The degree of deformity, requiring the crotchet, the Cæsarean operation, or the division of the symphysis pubis; their comparative merit examined;" 2d. He has given a "comparative estimate of the mother's life, and the life of the child-in utero."

1493. He answers his first inquiry by giving the preference to the crotchet, from the following views. He says, "whenever the pelvis is so distorted in its form, and so contracted in its capacity, as not to permit the head of the child to pass unopened, it constitutes that degree of laborious parturition," for which the comparison of the merits of the crotchet, with that of the Cæsarean operation, &c. was instituted. p. 25, Essays.

1494. That, "whenever a woman falls in labour, the small diameter of whose pelvis measures only two inches and three quarters, one of the following circumstances must take place."

1495. "First, the child's head must be opened, and the contents discharged, that the bones may be permitted to collapse; and the volume being thus diminished, it may afterwards be extracted with the crotchet;" or,

1496. "Secondly, for the certain preservation of the child's life, the mother must be doomed to *inevitable destruction*, by the Cæsarean operation;" or,

1497. "Thirdly, as a mean between the two extremes, the mother must submit to the section or division of the symphysis pubis; an operation of less danger to the parent than the Cæ-

* I was ever after obliged to deliver this patient with the forceps: this happened four times; and without the smallest accident to either mother or child.

sarean section, but at the same time certainly less safe for the child;" or,

1498. "Lastly, if none of these means will be permitted, the wretched mother, abandoned by art to the excruciating and unavailing anguish of labour, will probably expire undelivered."

1499. From this it would appear, that every woman who has less than three inches in the small diameter of the superior strait, must die, or be delivered by the crotchet; by the Cæsa-rean operation; or the section of the pubes, if at the full period of utero-gestation. In this all writers agree. But Dr. Osborn is of opinion that nothing but the crotchet should ever be employed under such circumstances, unless the opening at the superior strait has less than one inch and an half; for when there is this opening in the antero-posterior diameter of the superior strait, the child can be extracted by the crotchet, p. 64, and whenever a child can be extracted by the crotchet, neither of the other operations should be thought of.

1500. He is led to this conclusion, first; from his estimate of the value of the child's life while in utero, when compared with that of the mother. He declares the former to be "incomparably small," nay, "diminished almost to nothing, and affords the most irrefragable argument in favour of the delivery by the crotchet in preference to either of the other methods," p. 24. And second, from his having delivered a woman safely by the crotchet, whose pelvis was said not to exceed one inch and three quarters, at the upper strait.

1501. Dr. Osborn commences his inquiry by stating, "a being in the uterine state of existence, sustains no immediate loss by the deprivation of the living principle, and can scarcely be said to incur any other positive injury. Before the operation, the child in utero cannot suffer mental anxiety, or apprehension from the threatened violence; nor does it feel, I am persuaded, the smallest bodily pain, in the actual commission even of such violence." The question here is not fairly stated—it is not whether the child suffer from this violence or not; the question is, whether it shall have a chance to live, or be destroyed? the feelings of the child must not be taken into consideration, in weighing the question, which life must be sacrificed. For if

we deal honestly upon this subject, and conclude, that the life of one or the other must be forfeited, we are forced to the conclusion, that the child must be immolated to preserve the mother; it becomes then a matter of comparison which is the most valuable to society in all its relations, and I yield the point in favour of the mother's preservation; and I should do so, were the child a thousand times more sensible than it is. For did we withhold an operation from a persuasion that the child in utero is endowed with great sensibility, and that, like "the poor beetle that we tread upon, in corporeal suffering finds a pang as great as when a giant dies," I say, did we withhold an operation essential to the mother's welfare, from these considerations, we should be exalting the mere sensibility of the child above the usefulness and importance of the mother, to the husband, parents, friends, and to society. I must therefore insist, that the sensibility of the child, be it what it may, must not be taken into the consideration.

1502. But let us believe the child to be as void of sensibility, as a cabbage, or any other vegetable, while in utero; what would this prove as regards the proper question? certainly nothing—for necessity, and that necessity, absolute, can be the only justification of the operation. For, if we permit our sympathies to get the better of our duty, and suffer the mother to die, from feelings toward the child, we destroy her by such an exercise of our sensibility; and on the contrary, if we wantonly or heedlessly kill the child because we have persuaded ourselves it possesses nothing more than vegetable life, or life without sensation, we *murder* it, by conforming to an hypothesis. I therefore repeat, the properties of the child, be they what they may, must never enter into the calculation, when it is unrelentingly fixed, that it or the mother must be the victim.

1503. The Doctor next declares, "as children before birth are incapable of mental apprehension, so it is as undoubtedly true, that they are not yet arrived at, or in possession of, bodily sensation, and therefore cannot suffer pain or become objects of cruelty." I would inquire, how has the Doctor ascertained that "children before birth are incapable of mental apprehen-

sion?" for on this his remarkable conclusion is founded. Has he any proof whatever that this is really the case?

1504. But before I proceed farther, let me show what Dr. Osborn means by "mental apprehension."—"Before the operation, (of cephalotomy,) the child in utero cannot suffer mental anxiety, or apprehension from threatened violence; nor does it feel, I am persuaded, the least bodily pain in the actual commission even of such violence," p. 36. Again, "it is certainly from that apprehension, combined with other circumstances of misery, which usually precede and accompany the act of dying, that death can in itself be considered as the greatest of human evils—and from every one of those, the child in utero is exempt." p. 37.

1505. From this it is evident, Dr. Osborn supposed bodily sensation was dependent upon "mental apprehension," or in other words, there could be no "corporeal suffering," if there were no "mental apprehension." Is this agreeable to common, and daily observation? Has not the devoted ox, power to perceive the "smallest bodily pain," because it cannot, or does not, anticipate its fate from the butcher's axe on the morrow? Were we to adopt this hypothesis, it would make "mental apprehension" the cause of corporeal sensation, which would most effectually confound all our philosophy.

1506. If I should be charged with having wrested Dr. O.'s opinion, though I have fairly quoted his words; if it should be insisted that, "mental apprehension," meant perception, still the doctor is chargeable with having employed a gratuitous datum—for he has not proved, that the brain of the fœtus, especially at full time, (the period at which the operation he advocates is to be performed,) is incapable of perception; and until this be done, it is in vain to contend, that the child in utero cannot feel "the smallest bodily pain." On the contrary, does not the child acknowledge this in many instances? Is it not frequently provoked by external causes to move its little limbs? Nay, does it not do this very frequently without any, to us, obvious cause? May these stirrings not be considered as the exercise of volition? Has it not a brain, and nerves emanating from it? Are these nerves mere cords without sensibility? Is

the brain a mere glandular mass without function? I can readily believe their condition to be imperfect, but I cannot admit them to be without power or property.

1507. Does not the heart carry on the circulation as certainly, and as perfectly *quo ad hoc*, in the fœtus as in the born child? Could this organ perform its functions without a certain condition of the nervous system? If this be so, can the nerves be mere cords, without sensibility? If the nerves belonging to the heart be sensible, may not all others be so?

1508. In my opinion, then, Dr. O. has not made good his position; a position on which he appears to place much reliance for the support of his thesis, though in mine it has nothing to do with the question, as I have just observed (1051;) for I must repeat, that necessity, and strong necessity, alone can justify the operation under consideration—the preservation of the mother's life is the only motive to action, and the only object in view—if the child must be the sacrifice for the mother's safety, that sacrifice is imperious, be the condition of the child what it may.

1509. Dr. Osborn next informs us, “that they (children in utero) cannot suffer from mental apprehension, is notorious to general observation. Even years elapse after birth, before the mind is susceptible of fear, or apprehensive of danger.” Admitted: but what does this truism prove, as regards the subject in question? Nothing; for I still must insist, that necessity alone is to govern us; and if governed by that, the only question to be debated is, whether the child is to be *absolutely* sacrificed, for the *probable* safety of the mother? I say *probable* safety—for such only is it, as I shall attempt to prove presently.

1510. If we are under the necessity of opening the child's head, our social feelings would derive some solace, could we be certain, or even doubtful, that the child suffered nothing from the operation; but every thing opposes our drawing comfort from this source; for however our understanding may be confounded by specious argument, or wily sophism, our feelings will constantly bear witness against the truth of the propositions, and the legitimacy of the conclusions. And I believe that

God intended it should be so. What evils would flow from this source, did we but convince ourselves, that fœtal life was void of sensibility or sensation!

1511. The crotchet has been but too often wantonly employed, even where the practitioner had not adopted Dr. Osborn's opinion on the subject of fœtal sensibility; how much more frequently then, will it be employed, when the wholesome restraint of the contrary opinion is removed? I am persuaded that the exercise of true feeling toward the unborn babe, has more than once saved it from a severe and painful fate; but it must also be declared as my opinion, that it has but too often fallen a victim to a false estimate of the mother's danger—for I have known it used where there was the most healthy construction of the pelvis, and where a little address in the use of the forceps, or even a little more patience, would have preserved the child from a premature death.*

1512. Dr. Osborn farther informs us, that "diseases which at any period attack the human body possessing sensation, with sufficient force to destroy life, are in general attended with such a degree of pain, as to excite extraordinary motion, and some struggle; at least in articulo mortis. It is highly improbable that this should take place in the uterus, and the mother be insensible of their effect," p. 40. This statement at once brings Dr. Osborn's arguments to issue. He declares the struggle of an infant in utero would be an evidence of pain, and of course of its possessing "sensation;" and that if this struggle did take place even in articulo mortis, it is highly probable that the mother would be sensible of it—now, what is the fact upon this subject? Why, that I have been repeatedly informed by mothers, that they were apprehensive their children were dead, because, after a severe struggle or kind of fluttering, which has been described of longer or shorter duration, they felt them no more—every accoucheur can bear witness to such statements from mothers.

* I am happy to find my opinion on this subject strengthened by a similar remark by Dr. James, whose opportunities afford him ample room to witness the abuse of this instrument in the hands of ignorant practitioners: in a note to Burns's Midwifery, p 35, note k, he says, he fears that "embryulcia is frequently resorted to very *unnecessarily* at least, to make use of the mildest term."

1513. Dr. Osborn again urges, that, "when we are compelled by dreadful necessity, to open the child's head while we know it is living in utero, that operation requires such extreme and *painful* violence, that, were the child endowed with the slightest sensation, he must of necessity feel it; and his feelings must necessarily be accompanied with such struggles and exertions, as would be emphatically expressive of pain, and must be readily perceived by the mother, in a part so sensible, and irritable as the uterus." p. 41.

1514. This is sheer sophistry—it is making a negative condition prove a positive position; or, in other words, it is making the absence of struggling prove the want of sensation; when the situation of the child in utero is such, very often when it is necessary to perform this operation, as to render such evidence of its sufferings impossible. For this operation is recommended to be performed after the waters have been expended, and the uterus is firmly contracting round the body of the child. Now, it is well known to every accoucheur of any experience, that the uterus in many instances will so strictly gird the child, as to preclude the possibility of "exertion," be its feelings what they may.

1515. Besides, in a case which I witnessed of the operation of cephalotomy, the woman declared to me without inquiry, that the most painful part of it was the struggles of the child. Now in this case the waters had been but recently discharged, and the uterus contracted but once in about twenty minutes. I mean not to lay undue stress upon this case; for it is not essential to my argument. I well know the imagination does much upon such occasions, and a convulsive action of the uterus may have been mistaken for the motions of the child; though it was precisely such a case, as would lead to the belief, that the poor woman was correct; for the child was certainly alive when the operation commenced; the waters had been expended but a short time; and the woman's observation was spontaneous, and unprovoked.

1516. Dr. Osborn, however, tells us on the contrary, that "upon accurate and repeated inquiry in several such cases, he could not learn that the mother was sensible of any such alter-

ation in the motion of the child, even at the commencement of the operation, when the violence offered to it first takes place, and must be most painful." This statement of Dr. O.'s amounts but to this negative; that in the cases in which he made "repeated inquiry," no struggles were perceived; but this is very far from proving, that none upon any occasion could take place. For this might well happen in "several cases," yet not be true in all; and if there have been one case in which the child was known to struggle in consequence of the operation, it is every way sufficient to confute the arguments of Dr. O.; since, he makes struggling a proof of sensibility—and I most sincerely believe many such cases have occurred. There are two especial reasons why this may not commonly happen: 1st, as stated (1514;) and 2d, the child is sometimes dead before the operation is commenced.

1517. "Having proved," continues Dr. O., "that the loss which the child sustains, by the deprivation of the living principle, is so extremely small as almost to vanish to nothing, and that its bodily sufferings in the act of deprivation are absolutely none, it becomes proper, next, to inquire what is the value of an unborn child to its parents and to the community." p. 42.

1518. "Before the birth of the child, *parental affection has not taken place*, which, for the wisest and best purposes, is one of the strongest, the most universal, and perhaps, the most uncontrollable passions of the female breast; often changing, even in the subordinate parts of the creation, the very nature of a timid mother, into that of a ferocious animal. Disappointment of expected pleasure only, not the loss of an object of this powerful passion, or the loss of any actual enjoyment, is the sacrifice the unhappy parent makes on this occasion." p. 43.

1519. In my opinion, Dr. O. is far from having *proved* what he states to have done, (1516) with so much self-complacency, to any other human being than himself; and, if he had really "proved" what I think he has merely taken for granted, it still would have no bearing on the subject—the degree of sensibility of the child while in utero, or whether it possess any, is not the question, as I have before declared; neither view, then, should

prove a motive for the operation, or should deter from it; for this point must be settled upon other principles.

1520. But where Dr. O. learned that parental affection did not exist before birth, is difficult to say; for I must declare, and I do this without fear of contradiction, that the affection of the parent is strong, nay, oftentimes very strong, for the child while in utero—and if any accident befall it, a sorrow, and that sometimes of a deep kind, is for a long time indulged—I have known two instances of protracted, and deep seated gloom, follow the birth of still-born children; and in one, it was not removed until a subsequent pregnancy gave promise of a more fortunate result; the other gradually yielded to time, and change of scene.

1521. It would be idle to say that these were not cases of disappointed or lacerated *affection*, but the mere privation of a promised or anticipated pleasure. Besides, Dr. O. tells us, that “parental affection” converts, in the brute, “the timid mother into the ferocious animal;” from whence arises this recklessness of danger in the “timid mother,” in defence of her offspring, when she exposes herself to death, and often meets it fearlessly in attempting its protection? What anticipation of future or “expected pleasure” exists in them? there are not, nor cannot be, any promised joys here; they look not forward for such reward; yet they unceasingly display affection and courage, that might put to shame some, who *should* derive delight from offspring. Dr. O. could not have been a father.

1522. Dr. O. pursues this subject by observing, “had parental affection commenced at the time of conception, or when the embryo is first formed; and had it continued increasing during gestation, as the fœtus advanced in growth, by the time of birth the passion would have been mature, and its influence most powerful, and the mother’s sufferings would have been greatly aggravated by the loss of a beloved child.” And is this not precisely what happens in a large proportion of cases? Who has not witnessed the joy of a mother at the first evidence she has that her child lives within her? Who has not witnessed the growing affection of the parent as gestation advanced? and

who has not observed the sorrow, when all this maternal solicitude had proved unavailing? What motive governs the mother, when she submits to the Cæsarean operation, or yields to the section of the pubes? Love, unbounded love for her unhappy offspring! And who cannot bear testimony to the agony of the mother for the loss of her unborn babe, that has witnessed the dreadful operation of the crotchet? If these things were denied by Dr. O., I must repeat, he is no father.

1523. Dr. O. goes further; he declares, "such a passion (maternal affection) could not be directed to any useful purpose, during the existence of the child in the uterus; nature, who never performs works of supererogation either in the physical or moral world, has not yet kindled it in the mother's breast: it begins only with birth: and parents in general may, I think, be literally said to suffer nothing, by the loss of an unborn child."

1524. To this I will briefly state, that maternal affection is constantly necessary, from the moment conception is believed to have taken place, until the final expulsion of the child from the uterus. Were a woman not influenced by strong affection to the protection of her child while in utero, she would have no reward for the many, and oftentimes severe sufferings, and privations, during that period; and were not this love for the child paramount to every other feeling, as a general rule, there would be no motive for its preservation—carelessness, or design, might constantly circumvent the great object of creation. And, with respect to his conclusion, I appeal to the whole world for its refutation.

1525. Again, the Dr. says, "to society, likewise, the loss of any individual child must be exceedingly small, when it is known by daily observation, what great numbers of children are still-born, or die without such violence before birth; when it is likewise known, how very precarious is the chance of a child's living two years; but how most of all precarious, is its arrival at that period of life, when it can be of any service to its fellow-creatures, or even participate itself in the enjoyments of the world." (p. 45.)

1526. To me it is truly a matter of surprise, that the various

contingencies which may prevent a child from being born alive; from its continuing two years upon earth after birth: or from arriving at manhood; should be employed as an argument against the value of the child's life. It appears to me, that it should have a diametrically opposite bearing: for, were the birth of a still-born child a rare occurrence; were it almost certain that children should arrive at the age of two years; their arrival at puberty, or beyond it, nearly sure; the occasional loss of a child by embryulcia, or any other violence, would then be but little felt: but when such violences are to add victims to the already too large list of human deaths, they must be considered as evils; whatever may be the necessity for employing them.

1527. I admit, that society suffers but little loss on account of "any individual child," so long as the loss is confined to that individual child; but when this indifference to "individual" life, goes beyond a single instance, we cannot foretell where it may stop—it may extend to thousands; for thousands are but aggregated units.

1528. Dr. O. concludes this remarkable essay, in these words: "In estimating the value of the life of the unborn child at so low a rate, I *most earnestly* request the medical reader will never lose sight, that it is only in comparison with the mother, or when the child's life is put in competition with her safety, that any arguments on this score are entitled to the smallest weight. It is for the preservation of the mother's life only, that we can justify the practice here recommended and insisted on." (p. 45.)

1529. It does not appear to me at all necessary, that the value of the child's life should have so low an estimate, in order to have arrived at the above conclusion—it was every way sufficient for the purposes for which the comparison was instituted, that the value of the mother's should have been deemed greater. I fear, Dr. O. is chargeable with having done mischief, by the view he has taken of this subject; for I do know full well, he has been quoted in support of "cephalotomy," where its necessity, in my estimation, was far from being absolute.

1530. As no possible advantage could result from the manner in which Dr. O. has treated this inquiry, it is to be lament-

ed that it was ever agitated; since the subject has not derived the smallest elucidation from it; yet it may occasion serious, and often-repeated mischief. Had he treated this matter differently, and shown how precious is the life of the child; yet, however precious, that that of the mother is still more so; and that nothing but imperious necessity should be permitted to institute a comparison of their respective values, when one or other must be the sacrifice; it would, in my opinion, have more certainly served the cause of humanity, and much more effectually have promoted the interest of science.

1531. I shall pursue this subject a little farther, by offering a few remarks upon "Elizabeth Sherwood's case," by which Dr. O. supposes he has ascertained the minimum opening of a pelvis, through which a child at full time may be extracted by the crotchet, at the full period of utero-gestation.

Observations, &c. on Elizabeth Sherwood's Case, as related by Dr. Osborn.

1532. The whole of Dr. Osborn's arguments on the subject of "embryulcia," are intended to show; that this operation decidedly merits the preference over the Cæsarean section, wherever there is an inch and a half of opening at the superior strait; and that it is never justifiable to perform this latter operation, when a diameter of this size really exists: and he attempts to illustrate this position, by the recital of the melancholy case of Elizabeth Sherwood.

1533. The comparative merits of these two operations should alone be decided by the advantage one may possess over the other; and this advantage determined by the general results of the respective operations. Dr. O. condemns without reserve the Cæsarean section, as consigning the woman to "inevitable destruction," while a number of equally respectable men, recommend it in preference to the crotchet; affirming it to be equally safe, and decidedly more advantageous, as the child has a chance of life. I shall, however, reserve my consideration of this subject, until I speak of the Cæsarean operation itself: and shall now proceed to make a few observations upon

the case on which Dr. O. is determined to rely, for the support of his opinions upon this point.

1534. Elizabeth Sherwood's was a case of extreme deformity; she was but forty-two inches in height—she could neither move nor stand, but by the aid of crutches. In her 27th year she became with child, and was admitted, for the purposes of delivery, into the Store Street Hospital, London. After her labour commenced, it was first contemplated to perform the Cæsarean operation, as "*there would be a certainty of preserving one life at least.*" But this humane and proper determination was abandoned, it would seem, with as much facility, as cruelty, because Dr. O. and his friends "*were rather disposed to believe, that the child was dead.*"

1535. Not a single reason is given for the disposition to believe the child to be dead—nor were they satisfied themselves that this was the case, from the doubtful and careless way Dr. O. has expressed himself on this point. It was due to the public, to the profession, and to themselves, to have stated at large, the grounds of this belief; and, if they were well founded, the operation which was soon after commenced, was certainly justifiable; if the child were not dead, it might admit of doubt—however, the opening of the head was decided upon; and the child was ultimately delivered. It is upon this delivery, and the state of the pelvis, as declared by Dr. O., I propose to offer a few remarks; remarks, which have been suggested by carefully reading the case; and which has given rise to strong doubts of the fidelity of the representation;* but if faithfully related, it is entirely beyond my comprehension, and would dispose me to say, he had performed impossibilities.

1536. Dr. O. commences his account of the examination of this poor woman, by stating, "that immediately upon the introduction of the finger, he perceived a tumour equal in size,

* In this remark, I am by no means to be understood to insinuate, that I call into question the veracity of Dr. O. I merely suggest, that as mathematical precision could not be arrived at, an error in estimate may have crept into the account; since, from the great interest which was excited, as well as the confusion consequent upon such an operation, under such circumstances, extreme accuracy could not perhaps reasonably be expected.

and not very unlike in the feel to a child's head." This was the projection of the sacrum, and so advanced toward the pubes, as to leave but a space of three quarters of an inch. On the left side of this projection, towards the ilium, there was a distance of about two inches and a half; leaving a space of three fourths of an inch. On the right side, there was rather more than two inches; with an opening in its *widest part* of one inch and three quarters, gradually, however, narrowing each way—so much of the pelvis.

1537. From the data here given, both the superior, and inferior strait must have been faulty—the lower, I presume, to such a degree (though nothing of the kind is mentioned) that the hand could not be introduced; or, at least, not easily; since, the projection of the sacrum was “in size and feel like a child's head;” consequently, there must have been extreme difficulty in ascertaining the situation of the head, either as regards position or firmness; for the finger could not reach so high, without the introduction of the hand.

1538. He next informs us, “the os uteri, though but little dilated, was soft and flabby;” “the membranes were not yet broke, but with some difficulty he perceived the child's head through them, situated very high above the projection.” From whence did the difficulty to touch the child's head arise? its remoteness from the finger—the hand then could not have been introduced into the vagina, or this “difficulty” would not have existed—in an examination so important to the welfare of his patient, it is presumable that Dr. O. would have introduced his hand had this been practicable. I shall employ this conclusion presently.

1539. Next morning “no alteration had taken place either in the state of the os uteri, or the position of the child's head.” The membranes had given way during the night. Dr. O. now availed himself of the opinions of several celebrated accoucheurs and surgeons, none of whom, gave greater dimensions to the upper strait than had been given by him; some even less. The Cæsarean operation was first suggested; but abandoned, as stated above, without any apparent good reason.

1540. Dr. O. now commenced the operation of “embryul-

cia," and says "even the first part of the operation, which in general is sufficiently easy, was attended with considerable difficulty, and *some danger*;" from whence arose the danger? the wounding of course of the soft parts of the mother, I presume. "The os uteri was but little dilated, and was awkwardly situated in the centre, and most contracted part of the brim of the pelvis"—that is, where there was but a space of three fourths of an inch. "The child's head lay loose above the brim, and scarce within reach of the finger, nor was there any suture directly opposite to the os uteri." Would it not seem to require an unusual perfection in tact, under such circumstances, to satisfactorily determine there was no suture opposite the os uteri?—probably there was none; but to ascertain and satisfy ourselves, as Dr. O. appears to have done, would require, as I have just stated, an uncommon degree of nicety of touch; for it must be borne in mind, there was no pressure at this time on the head to make the bones ride over each other, and by which the presence of a suture might be detected or even suspected; on the contrary, "the head lay loose above the brim, and scarce within reach of the finger."

1541. I grant, however, it is not fair to suppose another cannot do that, which I should find impossible. Yet I must consider myself safe in the remark, that a little pressure from the finger, and some resistance from the head, would have been essential to the discovery of a suture, had one even been there.

1542. Dr. O. proceeds, and says, "he desired an assistant to compress the abdomen with sufficient force to keep the head in contact with the brim of the pelvis, so as to prevent its receding from the scissors, upon the necessary pressure of the point, to make the perforation; I introduced them, with the utmost caution, through the os uteri, and, after repeated trials, at length succeeded in fixing the point into the sagittal suture, near the posterior fontanelle." All this is so very circumstantial, as to excite my wonder in no small degree—first, there was no suture opposite the os uteri; second, the os uteri was in the centre of the projection, and not well dilated, and at a part where there was a space but of three quarters of an inch; third, the head was forced to keep its situation, that the scis-

sors might enter; in which, after several attempts, he succeeded to penetrate a suture, and that, the "sagittal suture near the posterior fontanelle!!" Now, I think I do not disparage the tact of any man, either living or dead, when I say, that none other than Dr. O. could have told into which of the sutures he plunged his scissors under the same circumstances.

1543. Dr. O. now tells us of some of the difficulties attending his enterprise, arising from his attempts to break down the bones of the cranium; confessing that "the instrument at first invariably slipped, as often, and as soon as it was fixed, or at least before he could exert sufficient force for this purpose." It would be instructive to know what parts of the mother received the point of the crotchet "when it slipped;" for we are forbidden, from the description of the pelvis itself, to suppose the point was guarded by the other hand, since it could not possibly be introduced profitably, (1538) if at all, into the vagina, for this purpose.

1544. At length the Doctor succeeded in firmly fixing the instrument, even into, he believes, the foramen magnum, of which he availed himself "to the utmost extent, slowly, gradually, but steadily increasing the force, till it arrived to that degree of violence, which nothing could justify but the extreme necessity of the case." I would ask what must have been the condition of the soft parts against which this force was exerted? I have known much less force than that "degree of violence which nothing could justify but the extreme necessity of the case," followed by severe, and even hazardous, if not fatal consequences. But in this case Dr. O. was ordained to triumph; over not only nearly insuperable difficulties, but also over the consequences of the extreme violence he was obliged to use to accomplish the delivery. In my hands, after such violence, I am disposed to believe, nay almost sure, the woman would have died; not so, Elizabeth Sherwood; for she was reserved for another trial of a similar kind, and not being under the care of Dr. O. she died.

1545. But, notwithstanding this great exertion of force, it was urged to no profitable purpose; he therefore abandoned the idea of breaking down the base of the cranium by the

crotchet, and then most happily succeeded in effecting by address, that which could not be overcome by force; for, by a little management with two fingers, he was fortunate enough to place the base of the skull edgeways, which permitted it to pass, by a continuation of the force applied to it. Now, only let us consider how wonderful Dr. O's achievement in this instance must have been:—first, he accomplishes the penetration of the skull, and the evacuation of the brain; next, he succeeds in detaching by the crotchet every part of the bones from the cranium, except the base, through an aperture of one inch and three quarters in width in its greatest capacity, and this gradually diminishing; it had, however, *rather* more than two inches in length. Though this removal of the bones is not exactly expressed, it must be so understood, or he could not have turned the base of the cranium “edgeways.” Soon after this, his difficulties were at an end, by the successive delivery of portions of the child's body, &c.

1546. This case is to serve, from its success, as an instance of the triumph of skill and of perseverance over the greatest possible difficulties which can be well encountered in a labour; and one as proving clearly and distinctly the superiority of the crotchet over the Cæsarean operation, though the woman endured inquisitorial tortures with “surprising firmness and fortitude” for three hours, and most miraculously escaped with her life. I say miraculously escaped—for who could, or who would anticipate success from such violence, under such circumstances? I am persuaded, that neither Dr. O. nor his competitors looked forward to such an issue, at the moment of its performance; and it is nothing more, if the whole be faithfully related, than an instance of how much the human body can bear, and not an example from which either the young or the old practitioner, can safely draw conclusions in its favour. I have seen death follow the use of the crotchet, where there was neither the same degree of deformity, nor the same violence necessary to effect the delivery; and where I believe as little injury was sustained by the soft parts, as the nature of things permitted. I shall again have occasion to speak of the risks of embryulcia.

1547. The mode of performing embryulcia is sufficiently simple, if we merely regard the opening of the head, and the breaking down the texture of the brain; but the extraction of the bones in a confined pelvis is replete with difficulty, if we are sufficiently mindful of doing no injury to the soft parts of the mother; and on this almost every thing depends. The head, if moveable at the superior strait, should be fixed, if the uterus, after the evacuation of the waters, does not contract with sufficient force to do this—the point of Smellie's scissors must then be made to penetrate the cranium; and if a suture can be found, it should always be preferred—when they are introduced as far as their shoulders will permit, the handles are to be separated to some distance, and rotated in that situation, until an opening of sufficient size to admit the crotchet be made—when this is done, the crotchet must be passed into it, and the brain broken down with it. It is never necessary to use any other instrument for this purpose. When this is done, the point of the crotchet is to be fastened in the nearest portions of bone; and it must, if practicable, be guarded by the fingers of the other hand against slipping—if the bones collapse readily, and the pelvis be not much contracted, the head may pass nearly entire; but if it is necessary to employ much force, the portions of bone on which the crotchet is fixed, will successively give way—the detached portions must be carefully removed from time to time; taking care not to wound the vagina in extracting them.

1548. Dr. Osborn recommends the early use of this instrument, when it is necessary to employ it; and to permit the woman to rest for thirty hours, that putrefaction may take place in the child, as this will very much facilitate its extraction. Should the child have been dead some time before the operation, we need not wait so long, or perhaps not at all. I agree fully with Dr. Osborn, that the crotchet should be used on the inside of the cranium, for the extraction of the head.

SECT. IV.—*d. Of the Cæsarean Operation.*

1549. This operation is proposed as a means, in cases of extreme deformity, to preserve the life of the child, or the

mother, or both. The history of this operation offers proofs of success, as well as of failures; and it appears to be agreed upon all hands, that nothing can justify its performance, but such cases, as would require the use of the crotchet for their termination—the question then resolves itself into this; under extreme deformity, by which of the operations, will the patient and society be most benefited?

1550. From an attentive consideration of both these operations, I am in favour of the Cæsarean operation, wherever there would be an absolute necessity to use the crotchet for the delivery of the child; and for the following reasons:

1551. First, because the child must inevitably be destroyed by the use of the crotchet.

1552. Second, because, from all I can learn, and all that I have seen in the employment of this instrument in cases of extreme deformity, (though I confess my own experience in this business very limited,) the risk appears to be very great to the woman; and, as just stated, certainly fatal to the child.

1553. Third, because there are cases in which it is impossible, at least in my opinion, even not excepting such as may have an inch and a half in the antero-posterior diameter, to deliver with the crotchet.

1554. Fourth, because, where this instrument is employed, under the most favourable circumstances in which it would be justifiable to employ it, there is a constant and great risk to the mother, with the certain sacrifice of the child.

1555. In my remarks upon the choice of the crotchet, and Cæsarean operation, I must always be understood to have reference to cases where it is ascertained, or presumable, that the child is living; for if the child be dead, and this satisfactorily proved, then the crotchet, under a sufficient diameter of pelvis,* should be preferred. See chapter on the uncertainty of the child's death.

* By a sufficient diameter, I mean, where there is at least two inches in the antero-posterior, and at least three and a half in the transverse; below this, delivery per vias naturales, I repeat, I believe to be impossible. And it is a moot point, whether, with a diameter of full two inches, &c. the risk to the mother is not as great as the Cæsarean section; yet in this instance, and with a dead child,

1556. But if the child be dead, and the delivery impossible by the crotchet, the Cæsarean operation should be proposed.

1557. Our opinions upon the propriety of the Cæsarean operation, will vary as we may consult the British or the Continental accoucheurs upon the subject—the former declaring its invariable failure to the mother, though sometimes fortunate to the child; while the latter assure us, it frequently succeeds with both. Whence arises this difference in result?

1558. M. Tenon declared to Dr. Garthshare,* that in his opinion, the reason why it so seldom succeeds in Great Britain, was because in that country the operation is almost invariably deferred too long; the patient is suffered to be almost in articulo mortis, before it is undertaken.

1559. It is no longer a question among the Continental accoucheurs, which of the two operations is to be preferred, when there is an absolute necessity for either. The Cæsarean section is almost exclusively adopted; and the success attending it is sufficiently great, agreeably to the latest and best informed writers, to warrant this preference. Though the practice hitherto in Great Britain has been almost uniformly fatal, it is, nevertheless, considered a resource of the art, by several of its most eminent men; and they fail not to recommend it, whenever delivery is impracticable by this instrument; and even where it might be effected, but perhaps at an equal hazard to the woman.† Drs. Hull and Denman, and also Mr. Burns, may be considered as good authority upon this subject.

the crotchet would merit the preference, as it is apparently the less severe operation, and one that would more certainly meet the public approbation.

* Hull's letter to Simmons.

† Dr. Osborn, it would seem, had failed to convince his friend and associate, Dr. Denman, of either the superior safety of the crotchet in extreme deformity, or of the invariable fatality of the Cæsarean section; since, he has not quoted him as authority for the first, nor coincided with him in the latter. Dr. Denman decidedly favours the Cæsarean section, under circumstances wherein Dr. Osborn would have proscribed it. And in some instances, Dr. D. seems inclined to consider the operation in a moral point of view: he queries, "suppose a woman was so unfortunately framed, that she could not possibly bear a living child by any method hitherto known. The first time of her being in labour, no reasonable person could hesitate to afford relief at the expense of her child; even a second

1560. Notwithstanding all that Dr. Osborn has declared in favour of the safety of the crotchet in extreme deformity of the pelvis, he appears to have carried conviction to the minds of but few; and his unqualified assertion that the Cæsarean operation is "inevitable destruction" to the woman, is almost daily contradicted, by the promulgation of successful cases. That it is an operation of great hazard, no one will deny; but that it is necessarily fatal, has been contradicted, hundreds of times, by success.

1561. On the Continent of Europe, this operation is resorted to at an early period of the labour; before the woman is either exhausted by the continuance of unavailing pains, or is in a state almost of gangrene from fever. The uterus is cut before it is inflamed, and the child is extracted before it has expired; and the attempt to save both mother and child is sometimes crowned with the happiest result. Is there not, then, strong reason to believe, that were the same independence exercised by the surgeons of Great Britain towards the poor sufferers from deformity, the same fortunate issue would happen as in France and Germany,* and as frequently? I am by no means of opinion, that the failures, in England especially, have been owing to climate—procrastination is the cause of the evil.

1562. The Cæsarean section is recommended only when the child cannot be delivered without the mother incurring great

and third trial might be justifiable, to ascertain the fact of the impossibility. But it might be doubted in morals, whether children should be begotten under such circumstances, or whether, after a solemn determination she cannot bear a living child, a woman be entitled to have a number of children destroyed for the purpose of saving her life; or whether, after many trials, she ought not to submit to the Cæsarean operation, as the means of preserving the child at the risk of her own life, if she will submit to have children under such circumstances. This ought to be considered." (Introduction, Francis's ed. p. 423.)

* In both these countries, this operation has been repeatedly performed, with the most entire success; and we have recently had it in our power to congratulate the profession upon the successful operation of Dr. Locher, of Zurich, Switzerland, by which he preserved the lives of both mother and child. (See *Medico-Chirur. Trans.* Vol. IX.) In France, and other parts of the Continent, agreeably to Baudelocque, one hundred and thirty-nine women recovered, out of two hundred and thirty cases.

risk from the employment of the crotchet—this being the case, it should be well and satisfactorily ascertained, that there is sufficient room to permit the base of the child's cranium to pass without difficulty—I have already stated (note to par. 1555) the space I think absolutely necessary to this end; therefore, I should never think it justifiable to sacrifice the child for the bare possibility of its being delivered per vias naturales, and have, if it fail, no alternative but the Cæsarean operation. I must therefore repeat, and it is also the opinion, I am happy to state, of Hull, Hamilton, and Johnstone, that Dr. Osborn has fixed his limit considerably too low.

1563. For what reprehension, indeed I had nearly said punishment, would be sufficiently severe for that practitioner, who, after having destroyed the child, should find it impossible to deliver it; and then, for its accomplishment, subject the poor woman to the Cæsarean section?

1564. Some have insisted, that this operation should never be performed upon the living woman, let the exigency of the case be what it might—to this Dr. Denman makes the following judicious remarks: “Impressed, perhaps, with the dread of the operation, they did not distinguish between necessity and eligibility, and therefore wished to abolish it altogether, which would be an unnecessary and improper general rule. But if it were to be performed only when the patient was dead, more particularly if we were to wait for her death, as the only proper time of performing it, it would be fruitless. For I do not find any instance of a living child extracted by this operation after the death of the mother,* unless the child escaped by the same stroke as that which proved fatal to the mother, of which the accounts seem to be almost fabulous, or merely accidental. Yet, as in cases of women dying suddenly in convulsions, hæmorrhages, rupture of the uterus, or other rapid diseases or accidents, at different periods of pregnancy, or of a labour, it is possible for a living child to be extracted after

* There are two instances, within a few years, of this operation being performed after the death of the mother, with success to the child. One of these cases was after a flooding. (*Phil. Med. & Phys. Jour.* No. II. p. 189.) The other, after death from dysentery. (*Jour. Univers. des Sciences Med.* for Oct. 1822.)

the death of the mother, by speedily performing this operation ; and as no harm can possibly result from the operation, supposing ourselves disappointed, no reasonable objection can be made to our performing it under such circumstances.”*

1565. I might ask, what degree of turpitude, or if any, should attach, when a woman is permitted to die, knowing she must die if not relieved, if the only alternative in such case be neglected to be made use of, however hazardous? What is it that renders this operation so dangerous? to this kind of query Dr. Denman remarks,

1566. “In almost every case in which this operation has been performed in this country,” (Great Britain,) “the patients have died. It may be of use to inquire whether their deaths were occasioned by any disease with which they were afflicted before the time of labour; were the consequence of the state to which they were reduced from the occurrences of labour, before the operation was performed; or were the inevitable consequences of the operation. In cases of death occasioned by wounds, the following order, in which the danger is produced, may be observed: first, from convulsions, or immediate loss of blood; secondly, from inflammation; thirdly, from gangrene; fourthly, from excessive, or long continued suppuration, under which the patient becomes hectic. Though almost all the patients on whom this operation has been performed, died, their death happened at different periods; but not one died, either while the operation was performing, or immediately after it. No convulsions were brought on by incisions; nor does it appear that any of them sunk through the loss of blood accompanying or succeeding the operation. If we may judge of the cause of death by the time of the patient’s dying, it might be said that the death of those who failed within twenty-four hours, was, probably, owing not to the operation alone, but to the violence of this, combined with that of the previous disease;

* I have been twice called upon to perform this operation after the death of the mother. One had been a flooding case; the other, convulsions. In neither did I succeed; owing probably to the too great lapse of time after life had ceased in the mother. It should, notwithstanding, always be attempted, under such circumstances.

but when they survived twenty-four or forty-eight hours, then their death might be attributed to the succeeding inflammation, in a body predisposed to disease. If we had the liberty of selecting a patient on whom to try the merits of this operation, we certainly should not choose one who was either very much distorted, or who had the mollities ossium, or who was evidently under the influence of some dangerous disease, or who had been several days in labour; because the event must very much depend upon her state at the time when the operation was performed.”—Introduction, Francis’s ed. p. 424.

1567. Dr. Denman deprecates the conclusion, that he is attempting “to lessen the general aversion to this operation,” and then remarks, “every woman, for whom the Cæsarean operation can be proposed to be performed, will probably die; and should any one survive, her recovery might be considered as an escape, rather than a recovery to be expected, though there is always a chance of saving the life of a child. But, as such an escape may happen in any case in which the operation might be performed, we may and ought to esteem every case which can come before us, as the individual case in which a happy event is to be expected. These conclusions will lead us to the principle of necessity as the sole justification of this operation, and urge us, when we do perform it, and as far as may be in our power, to select the most eligible time; and, from every motive, to exert all our judgment and skill for the service of the patient, as if we were certain she would survive.” p. 425.

1568. To this the Doctor most feelingly, and properly adds, “this operation can seldom be required; and of course never will be performed on the opinion or judgment of any one person, unless in some case of great and urgent necessity; and a concurrence of opinions will afford the best security against its being performed unnecessarily; and if it were to be presumed by a subsequent measurement of the pelvis, and a new consideration of all the circumstances, that it had ever been performed without such necessity, that would prove only, that the operation had been abused, and not serve as a valid argument against its use when such necessity really existed.” p. 425.

1569. It is not deformity of the bones of the pelvis alone,

which may give rise to the necessity of the Cæsarean operation—this cavity may be occupied by tumours, or exostoses, so as to prevent the passage of the child at full time, and which leaves no alternative but their removal, the crotchet, or the section of the uterus. The same reasons which might induce us to have recourse to the Cæsarean operation, under a deformity of pelvis, in preference to the crotchet, would be valid in this state of the pelvis; namely, the impracticability of labour per vias naturales. And, with respect to the removal of the tumours, it may be impossible, or so hazardous as to leave the choice in favour of the Cæsarean operation. See a valuable Chapter on this subject by Mr. Burns, *Midwifery*, James's ed. p. 35.

a. Mode of performing the Cæsarean Operation.

1570. Having never performed this operation on the living subject, nor ever having seen it performed, I must rely upon the practice and experience of others, for the manner in which it should be done. For this purpose, I have examined with care the various plans proposed for this operation; and think, that the method proposed by Baudelocque unites more just and rational views than any other I have met with; and shall therefore recommend it to be followed, should the necessity present itself for its adoption.

1571. He says, "the Cæsarean operation, like many others, has a time of election, and one of necessity: the latter always takes place when the waters are evacuated, except as circumstances foreign to those which oblige us to operate, present more urgent indications." This necessity is also created, he says, by the woman's sudden death, and the rupture of the uterus. See Chapter on the Rupture of the Uterus.

1572. The time of election is, he thinks, before the rupture of the membranes, and as soon as the labour has begun, provided the neck of the uterus is effaced, and the os uteri sufficiently open to transmit the lochia. By operating at this time, agreeably to M. Levret, the extent of the incisions, both of the abdominal and uterine parietes, will be less after the child is

delivered. For it is very certain that an incision of six inches will affect a smaller number of fibres and vessels, when the uterus is still distended with the waters, than when it is strongly contracted on the child's body, and reduced a fifteenth or a twelfth part of its size.

1573. He recommends two bistouries to be employed; one straight and probe-pointed, and one curved; but this last is not necessary; the common scalpel is better than the curved bistoury—there must be at hand needles, ligatures, compresses, lint, fine linen, brandy, &c. The woman must be placed on a pretty narrow bed, of sufficient height, and the bed should be the one on which she is finally to lie, that she need not be disturbed after the operation. The bed should be so protected, as to prevent its being wetted by the discharges, and when the cloths are withdrawn, to leave the woman dry. She should be laid upon her back, with the legs and thighs extended while the incision is made; and half bent, during the extraction of the child.

1574. He recommends, as do all the best writers upon the subject, that the incision be made in the linea alba: when the part of the abdomen is determined on, the urine drawn off, and the woman properly placed, the abdominal teguments should be carefully cut through, till the aponeuroses which form the linea alba are perceived. The linea alba must now be cautiously divided, to discover the peritoneum, in which a small opening must be made. A finger of the left hand must be introduced into this hole, and the abdominal teguments a little raised by it to prevent any of the parts within getting injured by the instrument, for which this finger serves as a director.

1575. The first incision must extend from the umbilicus, to within an inch, or an inch and a half at most, of the symphysis of the pubes. This he says is a little longer than it is usually made, but the uterus is better discovered by it, and it can be opened in consequence nearer to the fundus. He thinks the peritoneum is better opened from above downwards, taking care to go along one of the sides of the bladder, when this organ rises up too high, as sometimes happens.

1576. The uterus should be fixed by the hands of an assist-

ant, by pressing a little on the sides, and another make a similar pressure above the umbilicus, in order to circumscribe the uterine tumour, and hinder the intestines from presenting at the wound.

1577. The abdomen being opened to a convenient extent, a little stronger pressure is to be made above the umbilicus, to bring the fundus of the uterus nearer to the superior angle of the wound; it is then to be opened in the middle of its anterior part with the scalpel, until the membranes are discovered. An opening, only large enough to admit the finger, should be made into them, taking care not to wound the child; the fore finger is then to be passed into their cavity, as a conductor for the bistoury, with which the uterus must be opened, cutting from within outwards, as was done with the teguments of the abdomen.

1578. This incision in the uterus must be extended at least as high as the superior angle of the external wound, and terminating it below, an inch and a half, or thereabouts, above the inferior angle of it. The extent of this incision must be determined in some measure by the size of the child, which is supposed in general to be such, as will in its small circumference measure ten, or ten and a half inches. An opening then, of five or six inches, is generally sufficient; but it is better to make it larger than smaller, to avoid tearing the angles of the wound, when the child passes it.

1579. Should the centre of the placenta present itself under the knife, it must be cut; but if the edge is found in the neighbourhood of the wound, it is better to detach it in order to open the membranes.

1580. When the uterus is properly opened, the hand must be passed into it, and the feet searched for and brought out—proceeding as if a child were to be delivered footling. This rule must be observed, except where the head presents naturally to the wound of the uterus; if it be not expelled speedily by the natural contractions of the uterus, its exit may be favoured, by a slight pressure upon the sides of the belly of the woman, and at some distance from the incision, or by insinuating the fore finger of each hand, under the angles of the lower jaw.

1581. The placenta is soon expelled by the natural powers of the uterus forcing it towards the wound; this may be favoured by gently acting upon the cord, or by taking hold of the edge of the placenta with the fingers, so soon as it may present itself. Care should be taken to remove any coagula that may have formed within the uterus, and a finger passed through its neck, to force any that may have formed in it into the vagina. If the uterus remain soft and inactive after the removal of the placenta, it must be gently stimulated externally by the fingers, to oblige it to contract.

1582. But little blood is lost when the uterus is cut in the centre of its anterior face, unless the placenta be attached there, and even then the discharge is of but short continuance, if this organ contract forcibly. A bleeding may supervene some hours, or even days, after the operation—by exciting, however, the tonic contraction of the uterus, it will be put a stop to.

b. Treatment after the Operation.

1583. The general indications presented after the operation, consist: first, in the discharge of any foreign matter from the abdomen, which may have passed into it during the operation; this should be attempted before the wound is dressed, either by placing the woman in a convenient situation, or by pressure applied to the sides above the hips. Sometimes warm water has been injected for this purpose.

1584. The second, is the dressing of the wounds, &c.—the wound in the uterus will require but little attention; since, if this organ preserve its powers, its contraction will lessen it, immediately after the operation, one half, and would quickly heal, were it not for the passage of the discharges, which the uterus furnishes so abundantly the first few days after delivery.

1585. The third, consists in preventing or overcoming inflammation; this must be attempted by a strict antiphlogistic regimen, confining the patient to barley water, thin gruel, tapioca, rennet whey, &c.—forbidding, in the most earnest manner, all stimulating drinks, meat, broths, &c. in a word every thing animal, or spirituous, unless some contra-indications may exist,

or arise ; in such case, the patient must be treated agreeably to the judgment of the practitioner.

1586. It is thought by some, that in dressing the external wound, sutures are not absolutely necessary ; but surgeons of the highest character think it far the best method for securing the firmest and most solid cicatrix. Adhesive strips will bring the parts very well together, but the flaccidity of the abdominal parietes prevents the exact coaptation that is essential to a firm union.

1587. It is admitted that sutures have their disadvantages, as they are sometimes obliged to be cut, or to be loosened at least, owing to the distention of the abdomen, or to give transit to coagula. The quilled suture is thought by some to be best ; but whichever is employed, care should be taken not to wound the peritoneum in their formation. Sutures are to be so arranged as to permit the discharge of fluids from the wound ; they are, therefore, not to be unnecessarily multiplied.

1588. This wound is thought to require more frequent dressing, than any other penetrating the abdomen, in order to prevent extravasations, and the formation of clots, which the bandage retains within the lips of the wounds ; the dressings must be removed daily, or even oftener if there be reason to suspect either protrusions of the intestines, omentum, or extravasations. The frequency of dressing, however, will be diminished, as the lochia may flow more abundantly through the natural passages. The dressings, agreeably to Baudelocque, should be very simple, and without ointment.

1589. It evidently appears, that there is much advantage in keeping up a free discharge of the lochia through the os uteri ; and for this purpose several schemes have been proposed, such as a canula, or hollow pessary, &c. I do not think this can be either an easy or a useful plan, and that the end could be much better answered by the occasional introduction of a very large sized bougie ; this I am disposed to believe, would not be attended with much difficulty—but I confess its recommendation is speculative.

1590. It appears, however, to me evident, that some such contrivance is practicable, and may be well worthy the atten-

tion of one who may be under the dreadful necessity of performing this operation; especially, as Baudelocque declares it his opinion, that clearing the neck of the uterus from time to time, would render the Cæsarean operation more certain. And in an operation of such magnitude and consequence, attention should be paid to the smallest circumstance, if it contribute to render it less fatal.

1591. I have directed the patient to be restricted to the most rigid antiphlogistic treatment (1585,) wherever there may be inflammation, or even a tendency to it; I repeat it here, that I may say, that with the same object in view, Baudelocque recommends the same plan; but he unfortunately, in his enumeration of the antiphlogistic articles, reckons veal and chicken broth, both or either of which I would most positively forbid. He also recommends, that the patient should suckle her child if it be living; if not, to have the breasts drawn by glasses or puppies.

1592. Baudelocque farther says, "that after the perfect consolidation of the wound, the woman should never go without a proper bandage, to prevent a subsequent hernia."*

* Since writing the above, I received the following letter from my friend, Dr. W. E. Horner, Adjunct Professor of Anatomy in the University of Pennsylvania. The importance of its contents will amply apologize for its introduction:

MY DEAR SIR:—The Cæsarean operation, as commonly performed, puts into such danger the life of the mother, that it is still a desideratum to ascertain some modification of it, which may diminish its fatality, and thereby inspire the profession with more confidence and promptness in undertaking it. Several changes in it have been proposed from the time of its first adoption, principally with a view to avoid the chances of wounding the urinary bladder, or of cutting through the large vessels, which, in a state of pregnancy, occupy the broad ligaments of the uterus. In their principle, they differ materially from each other, as they all involve the necessity of cutting into the cavity of the peritoneum, on which circumstance, it is generally conceded, the great danger of the operation depends.

This operation has been a frequent subject of conversations which I have held with our common friend, Dr. Physick, and I have been as often instructed by the views which he has taken of it. More than two years ago, it being then a matter of particular inquiry with me, I was struck by the following proposition of his in regard to it, which made a very strong impression on me, and the justness of which I have ever since been extremely anxious to verify by dissection. It is well known to anatomists, that but a very small portion of the upper anterior part of the vagina, in the unimpregnated state, is covered by peritoneum, and

SECT. V.—*é. On Premature Delivery.*

1593. About the year 1756, as Dr. Denman informs us on the authority of Dr. Kelly, there was a consultation of the most eminent men at that time in London, upon the morality and

that the portion of peritoneum which lies upon the forepart of the cervix uteri and vagina is connected to them by a long, loose, cellular tissue, which allows the peritoneum, in the distentions of the urinary bladder, to be separated still further up from the vagina.

It has not been equally remarked, that this peritoneal covering of the vagina is of a very fugitive character, and that in the moderate distentions of the bladder, the peritoneum leaves completely the vagina, and applies itself to the bladder. It is also true, that if the distention of the bladder be much increased, the peritoneum even leaves the anterior face of the cervix uteri, and its reflexion to the bladder departs thence at the lower part of the *body* itself of the uterus.

By a fortunate coincidence, I have at this moment under my observation, these parts about the end of the sixth month of pregnancy; the fœtus having been just expelled from the uterus, with its head still remaining in the vagina, owing to a breech presentation. It may be mentioned in passing, that there is good reason to believe, that the uterus here took on the parturient action, after the other phenomena of life had ceased. In this case I find the peritoneum drawn off from the vagina by a common distention of the bladder. And by my drawing moderately at the bladder, the peritoneum leaves the cervix uteri after the same manner that it does in the unimpregnated state.

Dr. Physick, founding his ideas upon a similar observation made in early life, during the dissection of a pregnant woman, proposes, that in the Casarean operation, a horizontal section be made of the parietes of the abdomen, just above the pubes. That the peritoneum be stripped from the upper fundus of the bladder, by dissecting through the connecting cellular substance, which will bring the operation to that portion of the cervix uteri where the peritoneum goes to the bladder. The incision being continued through this portion of the uterus, will open its cavity with sufficient freedom for the extraction of the fœtus. All of which the Doctor supposes may be done by a careful operation, without cutting through the peritoneum.

It is evident, that if this be a practicable operation, it will diminish immensely the tendency to peritoneal inflammation, and will, in fact, put it on a foundation of danger very closely allied to the taking up of the external iliac artery, near its origin, by turning aside the peritoneum; an operation, the success of which, is sufficient to justify any competent person in undertaking it.*

Knowing the value which you, as well as myself, put upon the suggestions of a person whose mind is so remarkable for its professional sagacity and resources, I have thought that even a proposition not yet confirmed by actual experience of

* Dr. Physick proposes that the operation be performed with a moderately distended bladder; and that a catheter should be introduced previously, to ascertain its situation.

advantages which might result from inducing premature labour, in cases of deformity of the pelvis. The first case which was judged proper for the trial, fell under the care of Dr. M'Cauley, and terminated successfully. Since this time, it has been very frequently repeated in England and elsewhere, so that at the present time its "morality," "safety," and "utility," are firmly established. This being the case, I shall not enter into its defence, as its frequent success places it above such a necessity; I shall, therefore, take its propriety for granted, and merely lay down such rules for its performance, as have been found from experience best, with a few remarks upon these rules *en passant*.

1594. Dr. Merriman has summed up within a very short space the laws which should govern in this case, which I shall introduce, with a few remarks.

1595. "1. As the primary object is to preserve the life of the child, the operation should never be performed till *seven complete months* of utero-gestation have elapsed; and, if the pelvis of the mother be not too much contracted to allow of it, the delay of another fortnight will give a greater chance to the child surviving the birth."

1596. There has always been a considerable difficulty in ascertaining with precision the opening of the superior strait—none of the inventions for this purpose can perhaps be sufficiently relied upon, to remove all doubt upon the question; I am, however, of opinion, that the calipers of Baudelocque are the best for this purpose (55.) If the subject has been previously a mother, the size of the pelvis may have been pretty nearly ascertained during the progress of the labour; if she has not been, it will be necessary to employ the finger, &c. to ascertain its condition as nearly as may be.

1597. It would seem to be a rule founded upon experience, that no advantage would be gained by this operation, in a pel-

its success, would not be an unacceptable addition to the fund of information you are about to communicate to the public.

I remain, very sincerely, your friend,

W. E. HORNER,

To Doctor DEWEES.

Sept. 28th, 1824.

vis that had not two inches complete in its antero-posterior diameter, because a child at seven months, would require an opening of that size to permit it to pass; and it has been very universally supposed, that a child who has not enjoyed "seven months complete" residence in the uterus, will not live after its delivery. This must then be considered, as a valuable general rule; and if the state of the pelvis will admit of farther delay, it will unquestionably be to the advantage of the child.

1598. But what shall be done with women, whose pelves have rather less than two inches? shall they be abandoned to the Cæsarean section, or their children to the crotchet? either of these alternatives is certainly terrible; and, if nothing better present itself, must be submitted to—it may become a profitable inquiry to determine, from what has really happened upon other occasions, on the propriety of inducing premature labour at an earlier period than seven months; say at six. Children have lived, when delivered at this period, where there was no deformity of pelvis to contend with, (but this circumstance, it is true, may occasion a different result,) and it perhaps would merit a trial in cases of more excessive deformity; since, neither mother nor child can have any greater injury offered them, than the dreadful operations just named. I have witnessed two children living, one at this moment, and arrived at womanhood; the other several months, who were, as far as could be ascertained, not more than six months advanced in gestation.

1599. It might be worth the trial, in cases where the choice is not only so limited, but so almost certainly fatal, to one, or perhaps both, of the individuals concerned. I am fully aware of all the contingencies attendant upon the proposition, yet it seems to me to hold a remote chance to the child, without increasing the risk to the mother. I know full well how frail and tender the whole organization of the fœtus is at this period; and how many dangers await its delivery; but with me, they are not of sufficient force to destroy the possibility of success—the extreme pliability of the cranial bones at this period, gives a promise that the head may pass without so much injury, as to forbid all hope of its success; and if it succeed once in

twenty times, it is certainly better than opening the head always; or subjecting the mother to the other alternative.

1600. "II. The practice should never be adopted, *till experience has decidedly proved*, that the mother is incapable of bearing a full-grown fœtus alive."

1601. "III. It is sometimes necessary to have recourse to the perforator in a first labour, though there may be no considerable distortion of the pelvis; therefore, the use of this instrument in a former labour, is not alone to be considered as a justification of the practice."

1602. "IV. The operation ought not to be performed, when the patient is labouring under any dangerous disease."

1603. "V. If, upon examination, before the operation is performed, it should be discovered that the presentation is preternatural, it might be advisable to defer it for a few days, as it is possible that a spontaneous alteration of the child's position may take place; particularly, if the presentation be of the upper extremities."

1604. I have introduced this rule, because I am not certain that it may not be an important one; but to me, reason and experience, seem to be against it. Reason is against it; because, the length of the child from the points of the nates to the top of the head, would exceed the transverse diameter of the uterus, and, therefore, it could not perform the movement called the "Somerset," which would be essential to such a change of parts. See Baudelocque, on the movement called "Somerset."

1605. And experience, I am disposed to believe, must be against it, since before the rupture of the membranes at full time, and when the mouth of the uterus is even pretty well dilated, it is very difficult sometimes to determine the part which may offer to the finger—I believe that no accoucheur would always pronounce positively on the part which may present itself to the os uteri. If then he cannot at full time, when it must certainly be less difficult and less hazardous, how can he, without a prodigious risk of being mistaken, decide at seven months, when the neck of the uterus is not effaced; when it requires some force to pass the finger; when it must be passed

with great care and delicacy, that the membranes be not ruptured; and where, did we employ a pressure sufficient to determine the nature of the presenting part, the membranes would almost certainly give way; I ask, under all these disadvantages, how can we ascertain with such precision, as would render the examination available? Dr. James gives us an instance in point; in this case the membranes yielded, by some little damage being done to the membranes by a previous examination. See his interesting case, *Eclectic Repertory*, vol. I, p. 105.

1606. "VI. The utmost care should be taken to guard against an attack of shivering and fever, which seems to be no unusual consequence of this attempt to induce uterine action, and has often proved destructive to the child, as well as alarming with regard to the mother. The peculiar circumstances under which the operation is performed, and the habit of body of the patient, will determine the accoucheur either to adopt a strictly antiphlogistic plan, or to exhibit opium or antispasmodics and tonics."

1607. "VII. In order to give every possible chance for preserving the life of the child, it will be prudent to have a wet nurse in readiness, that the child may have a plentiful supply of breast milk from the very hour of its birth."

1608. This last direction would seem to intimate, that the woman who has undergone this operation, is incapable of nursing the child after it is born—but this is certainly not so—I have seen as abundant flows of milk after premature (spontaneous, if I may so term them) labours, as when the child was carried to the full time. Nor do I see any good reason, why an immature child should suffer more than a mature one, for the want of "breast-milk" for a few days—yet the caution may be useful.

1609. "Lastly. *A regard to his own character, should determine the accoucheur not to perform this operation, unless some other respectable practitioner has seen the patient, and has acknowledged the operation as advisable.*"

1610. It is not necessary to describe the mode of operating in this case; for, as Dr. Denman very justly observes, "No

person, properly qualified to decide on the propriety of this operation, can be ignorant of the manner of performing it." He cautions against injuring the child in this operation—this cannot happen, if a blunt instrument be used instead of a sharp one.

SECT. VI.—*f. Section of the Pubes.*

1611. I should not have enumerated this operation as one of the resources of the art, but to have it in my power to declare it not to be one—and though the operation has been performed twice, lately, with success, it is said; (that is, the children were born alive and did well, and the mother recovered;) yet it is evident, from the relation of the cases, there could have been no very great deformity of the pelvis, or much room to applaud the operator for his "success;" since, after the operation, the patients were placed in warm baths, and the farther separation of the bones and dilatation of the parts were left to the efforts of nature. On delivery, the bones were found separated an inch and a half, a proof there could not have been much restriction of the superior opening of the pelvis, as a separation of even two inches gives, as a general result, but six lines, or half an inch, in the antero-posterior diameter of the superior strait; therefore, less than half an inch must have been obtained in the cases just mentioned; yet with that additional capacity, the women were enabled to deliver themselves; consequently, there could have been but little deformity.

1612. Besides, it is stated, that in one of the cases no reunion of the bones took place, owing, it is supposed, to their not having been placed in apposition—this being so, one of two things must account for the defect; either that the operation must have been most bunglingly performed, not to have secured the bones in apposition; or, if this be not admitted, there must be a risk of union not taking place, however well performed.

SECT. VII.—*g. Regimen.*

1613. It was long taught, that as the child was entirely dependent upon the mother for its nourishment while in utero:

and that for the increase of the body, it was constantly necessary to have a supply of it; and that this increase of the body was in proportion to this supply, that the ingesta of the mother must have a decided control upon the size of the child—hence, a woman with a deformed pelvis, has been advised to live very abstemiously, with a view to diminish the size of the child. This speculation was both natural and ingenious, and has but one argument to be urged against it; namely, that experience has proved it not to be true. This scheme, therefore, is now, entirely, I believe, abandoned. Dr. Holcombe, however, in a letter to the author, has related several instances of success from diet and medicines, in considerable deformities of pelvis. See his letter, in the *Phil. Jour. Med. Sciences*, Jan. 1826.

CHAPTER XXXVIII.

II. III. MONSTROSITY AND ACCIDENTAL DEFORMITY.

1614. BOTH of these may render it necessary to mutilate the child, even in a well-formed pelvis; for they may produce a relative narrowness of this cavity—no certain rules can be laid down for the former, since their peculiarity cannot be ascertained beforehand—much must then be left to the good sense and discretion of the practitioner. One thing, however, is certain, monsters can only interfere with labour from an excess of parts—should the pelvis then be faulty, it may subject the woman to all the penalties of a positively deformed pelvis. The accidental deformity can rarely cause a more serious evil than delay in a well-formed pelvis, though it may, in a narrow one, create all the embarrassments of a too narrow cavity—when the head or abdomen are dropsical in a well-formed pelvis, perforating them will almost always relieve the woman by the evacuation of the water, but in a narrow pelvis, this is not sufficient; since by that operation only the excess of size is removed. I once saw rupture of the uterus from a hydrocephalic head. See “*Essay on Rupture of the Uterus*,” by the author.

CHAPTER XXXIX.

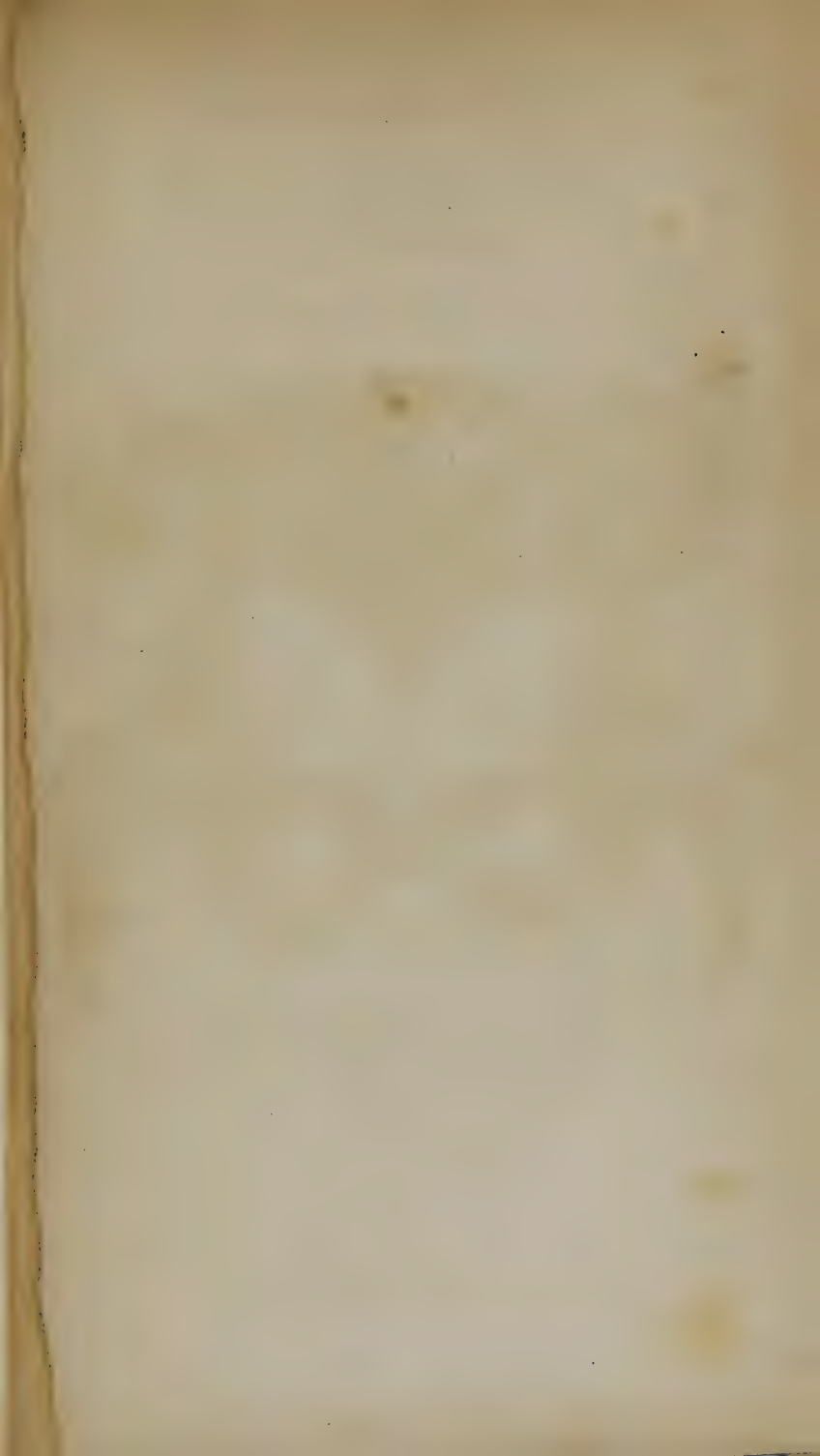
UNCERTAINTY OF THE CHILD'S DEATH.

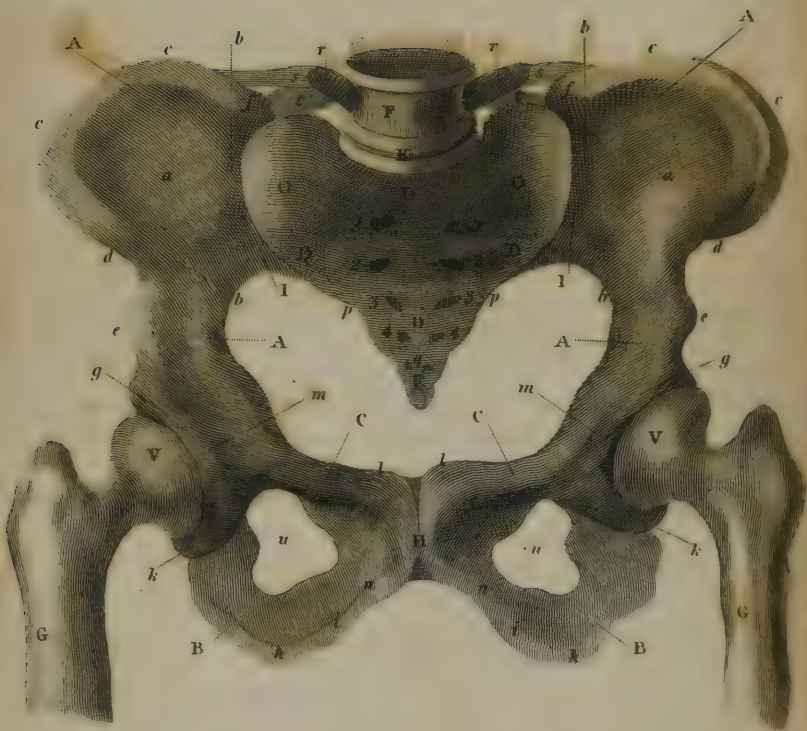
1615. In many instances, it would be highly important to us, did we with certainty know that the child was dead in utero—it would often abridge the sufferings of the poor woman, and sometimes spare the accoucheur many a deep drawn sigh, or even perhaps appease a disturbed conscience ; but this is a matter of great difficulty, as well as oftentimes of great moment to decide. All the commonly enumerated signs have been known to fail, and even when many of the strongest were united ; of this, Baudelocque* gives us a most memorable and interesting example—an example that should be well studied, and carefully treasured against the time of need.

1616. The reliance upon certain of the signs which are said to characterize the loss of life in the child, has been the cause of the immolation of thousands ; and, we cannot too earnestly deprecate this *facility* of credence, when we have but too much reason to wish it were so. There are but two unequivocal signs of the child's death, namely, a cessation of pulsation in the umbilical cord when prolapsed ; and the scalp forming a soft tumour, in which the bones of the cranium can be felt loose and detached.

1617. The escape of offensive gas, a separation of the cuticle or hair, a rolling motion within the abdomen, a shrinking of the abdomen, and the cadaverous appearance of the woman, are but uncertain signs of the child's death.

* System, par. 1898.





EXPLANATION OF PLATE I.

(FROM BAUDELOCQUE.)

- A, A, A, A, The ossa ilia, properly so called.
a, a, The iliac fossæ.
bb, bb, The angle which divides transversely and obliquely from behind forward, the internal face of the os ilium into two parts, and which makes part of the brim of the pelvis.
cc, cc, The cristæ of the ossa ilia.
e, e, The anterior superior spine of the ossa ilia.
f, f, The angle formed by the internal lip of the crista of the ilium towards the extremity of its anterior two thirds, and to which is attached a ligament inserted at the other end in the transverse apophysis of the last lumbar vertebra.
g, g, The inferior angle of the os ilium, which makes part of the acetabulum.
B, B, The os ischium.
h, h, The tuberosities of the ischia.
i, i, The branches of the ischia.
k, k, The posterior parts of the ossa ischia, which make parts of the acetabula.
C, C, The bodies of the ossa pubis.
l, l, The angles of the ossa pubis.
m, m, The posterior extremities of the ossa pubis, which make part of the acetabula.
n, n, The descending branches of the ossa pubis, which unite with those of the ischia.
D, D, D, The os sacrum.
1, 2, 3, 4, The anterior sacral holes.
o, o, o, The base of the sacrum.
p, p, The sides of the sacrum.
E, The coccyx.
F, The lumbar vertebra.
r, r, The transverse apophyses of the vertebra.

s, s, The ligaments which go from the transverse apophyses of the last vertebra, to the angle of the internal lips of the cristæ of the ilia, indicated by the letters f, f.

t, t, Two other ligaments which descend from the same apophyses to the superior edge of the sacro-iliac symphyses.

G. G. The femurs or thigh bones.

V, V, The heads of the femurs received into the acetabula.

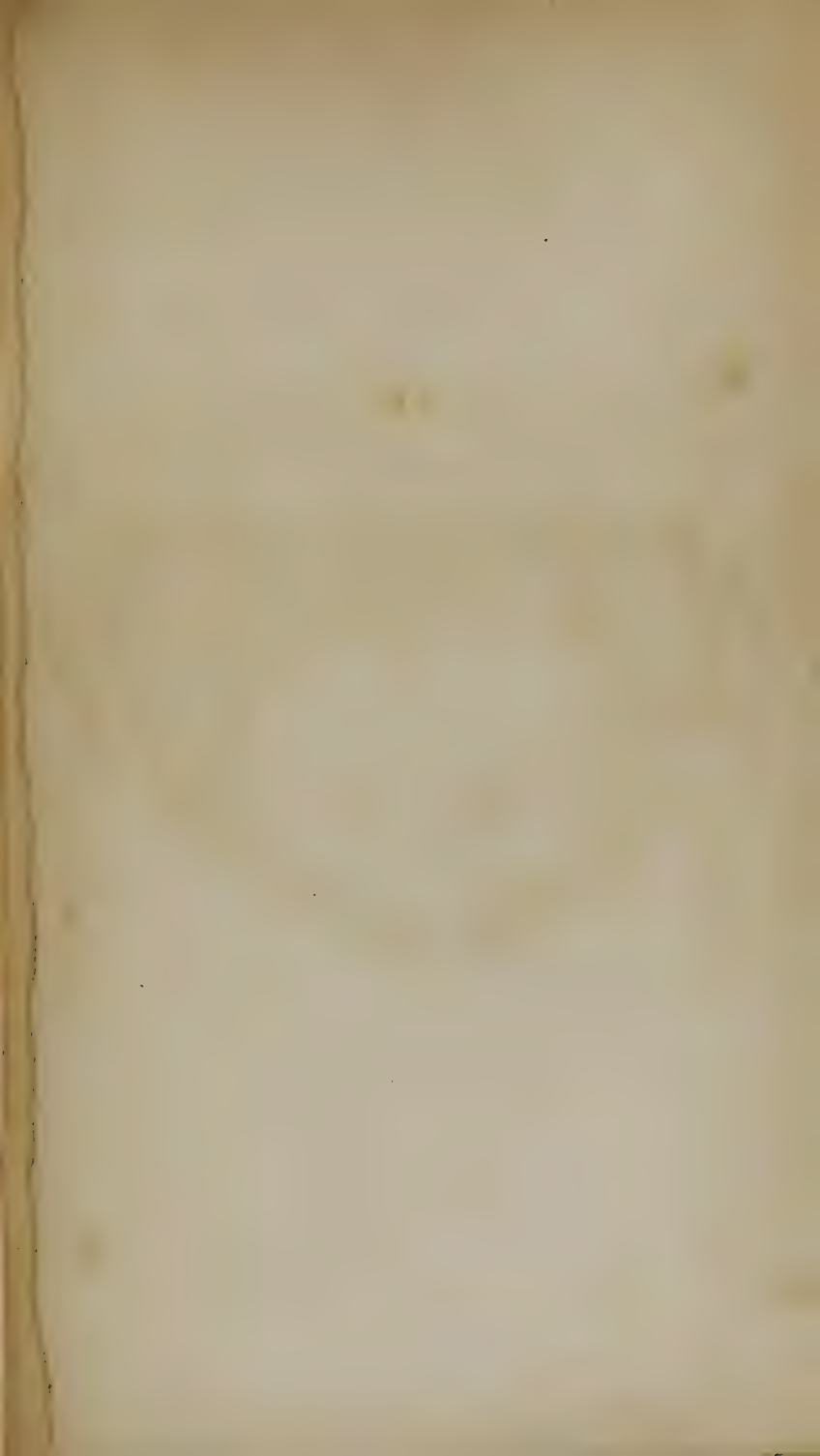
u, u, The foramina ovalia.

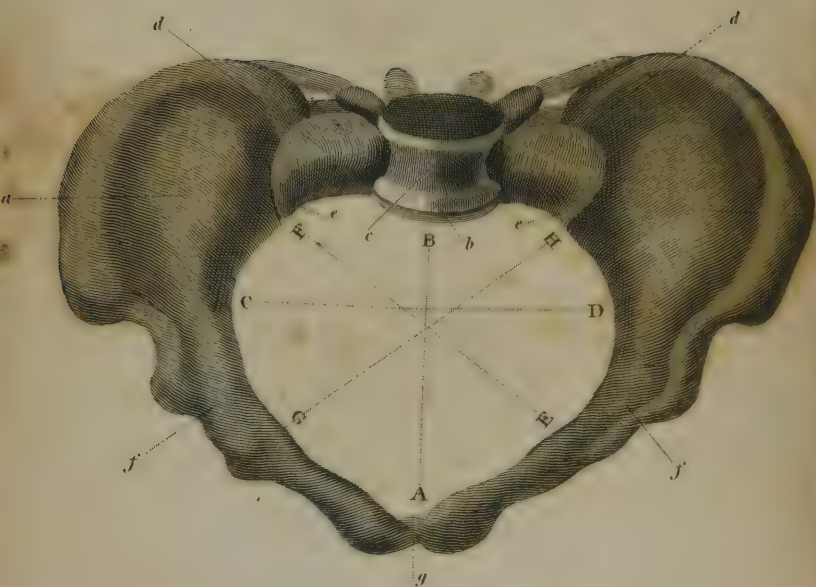
Symphyses of the Bones of the Pelvis.

H. The symphysis of the ossa pubis.

I, I, The sacro-iliac symphyses.

K, The sacro-vertebral symphysis.





EXPLANATION OF PLATE II.

This figure represents the entrance of a well-formed pelvis.

- a, a, The iliac fossæ.
- b, The sacro-vertebral angle, or the projection of the sacrum.
- c, The last lumbar vertebra.
- d, d, The lateral parts of the base of the sacrum.
- e, e, The sacro-iliac symphyses.
- f, f, The parts over the acetabula.
- g, The symphysis of the pubes.

The lines indicate the different diameters of the superior strait.

- A, B, The antero-posterior, or little diameter.
- C, D, The transverse or great diameter.
- E, F, The oblique diameter, which extends from the left acetabulum to the right sacro-iliac junction.
- G, H, The oblique diameter, which goes from the right acetabulum to the left sacro-iliac junction.

EXPLANATION OF PLATE III.

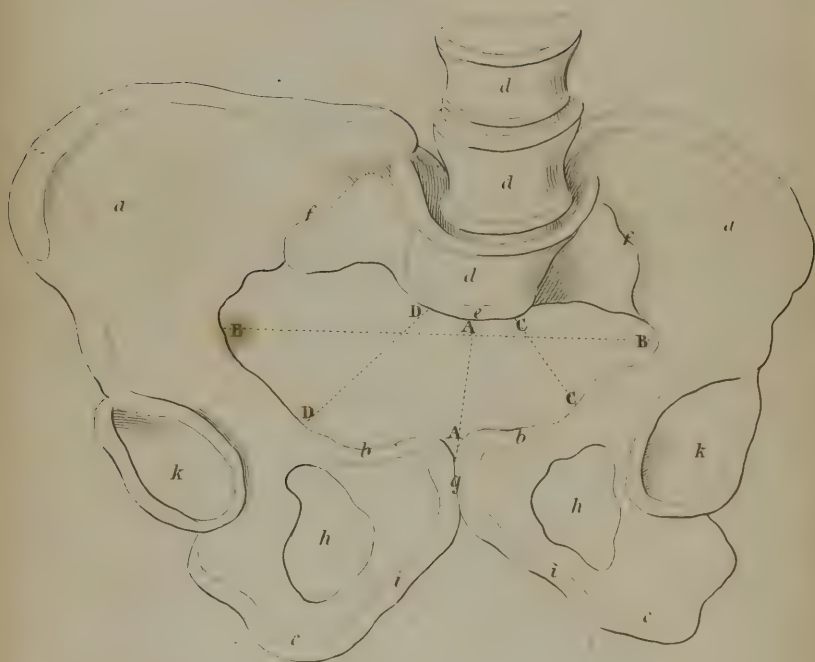
This figure represents the inferior strait of a well-formed pelvis.

- a, a, The external faces of the ossa ilia.
- b, b, The anterior superior spines of the ossa ilia.
- c, c, The anterior inferior spines of the ossa ilia.
- d, d, The acetabula.
- e, e, The foramina ovalia, with the obturator ligaments.
- f, f, The ischiatic tuberosities.
- g, g, The ossa pubis.
- h, h, The branches of the ossa pubis and ischia united.
- i, i, The sacrum.
- k, The coccyx.
- l, l, The sacro-ischiatic ligaments.
- m, The symphysis of the pubes.
- n, n, The arch of the pubes.

The lines indicate the diameters of the inferior strait.

- A, A, The antero-posterior diameter or great diameter.
- B, B, The transverse or small diameter.
- C, C, D, D, The oblique diameters.

PLATE IV.



EXPLANATION OF PLATE IV.

This figure represents a deformed pelvis.

- a, a, The ossa ilia.
- b, b, The ossa pubis.
- c, c, The ossa ischia.
- d, d, d, The last lumbar vertebra.
- e, The projection of the sacrum.
- f, f, The sacro-iliac symphyses.
- g, The symphysis of the pubes.
- h, h, The foramina ovalia.
- i, i, The branches of the ossa pubis and ischia, which form the anterior arch of the pelvis.
- k, k, The acetabula.

The lines indicate the diameters of the superior strait.

- A, A, The antero-posterior diameter; its natural width reduced to fourteen or fifteen lines, or so many portions, twelve making an inch.
- B, B, The transverse diameter—its length, in this subject, four inches, ten lines.
- C, C, The distance from the projection of the sacrum, to that of the margin which answers to the left acetabulum, thirteen lines.
- D, D, The distance from the same point of the sacrum, to that of the margin which answers to the right acetabulum, twenty lines.

EXPLANATION OF PLATE V.

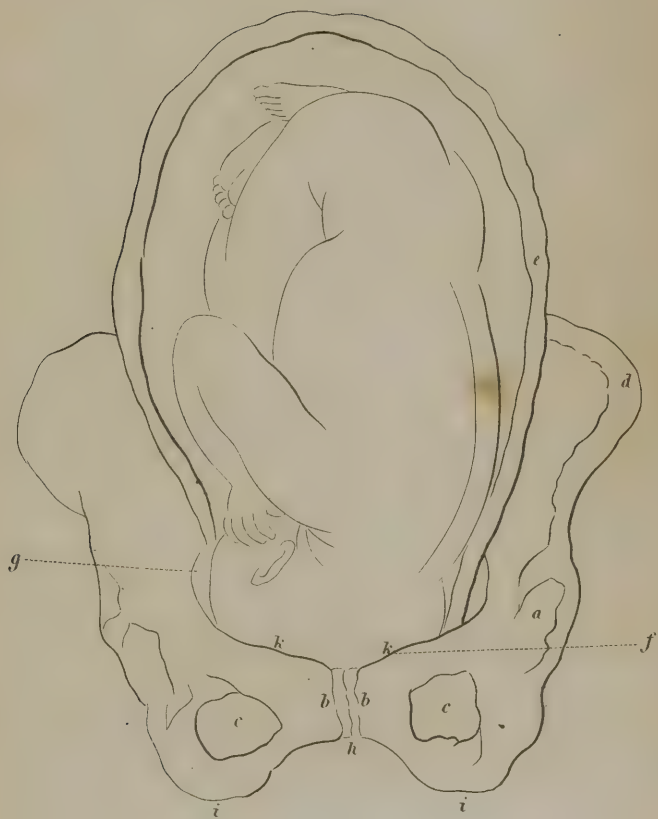
This plate is intended to represent the first presentation of the vertex, or where the posterior fontanelle is behind the left acetabulum, and the anterior to the right sacro-iliac symphysis. In this position, the head offers itself diagonally to the opening of the superior strait; the left ear will correspond with the right foramen ovale, and the chin is pressed against the sternum.

- a, The left acetabulum.
- b, b, The symphysis of the pubes.
- c, c, The oval foramens.
- d, The spine of the ilium.
- e, The uterus.
- f, The dots indicating the posterior fontanelle.
- g, The anterior fontanelle, or right sacro-iliac symphysis.
- h, The arch of the pubes.
- i, i, The tubers of the ischia.
- k, k, The margin of the pelvis, or superior strait.

For the mechanism of this labour, see page 239.

For the mode of turning in it, see p. 287.

For the application of the forceps, see p. 315, and following.





EXPLANATION OF PLATE VI., OR SECOND PRESENTATION.

- a, The right acetabulum.
- b, The symphysis of the pubes.
- c, Left foramen ovale.
- d, Spine of the right ilium.
- e, The uterus.
- f, Dots representing the site of the posterior fontanelle.
- g, Anterior fontanelle, or left sacro-iliac symphysis.
- h, Arch of the pubes.
- i, Tuber of the left ilium.

For the mechanism of this labour, see page 240.

For the mode of turning, see p. 288.

For the application of the forceps, see p. 318, and following.

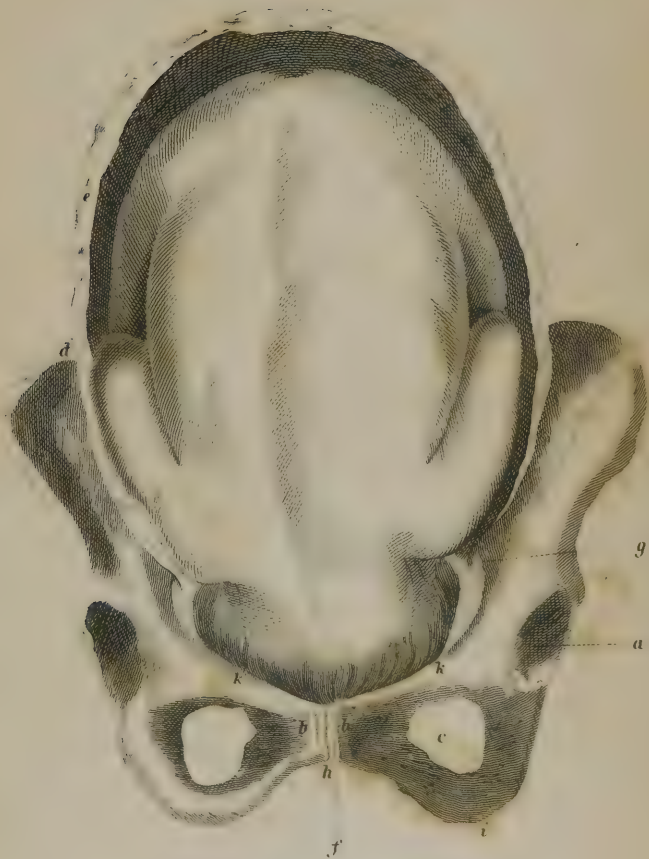
EXPLANATION OF PLATE VII., OR THIRD PRESENTATION.

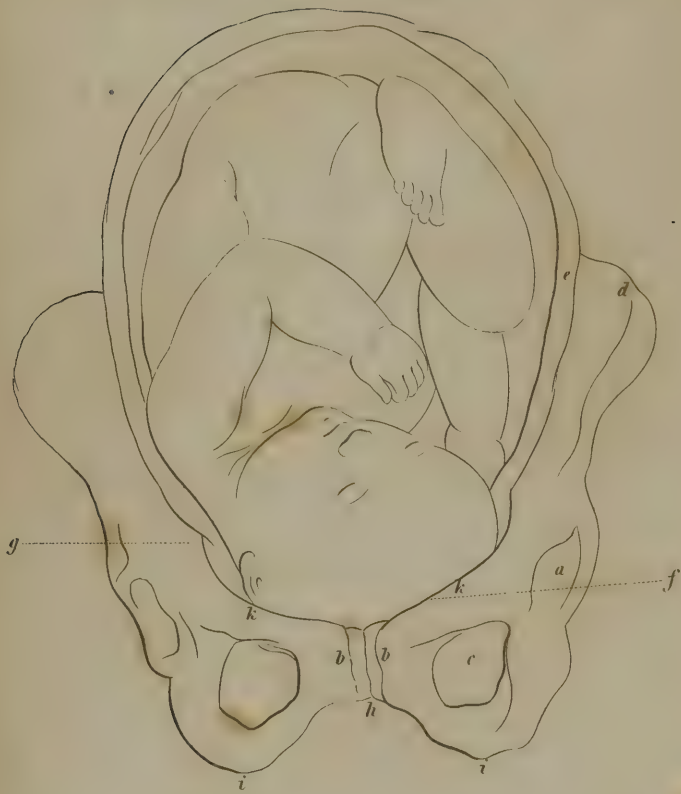
- a, Left acetabulum.
- b, b, Symphysis pubes.
- c, Left foramen ovale.
- d, Spine of the right ilium.
- e, The uterus.
- f, The posterior fontanelle, indicated by the dots.
- g, Left sacro-iliac symphysis.
- h, Arch of the pubes.
- i, Tuber of the left ischium.

For the mechanism of this labour, see page 241.

For the mode of turning, see p. 288.

For the application of the forceps, see p. 315, and following.





EXPLANATION OF PLATE VIII., OR FOURTH
PRESENTATION.

- a, Left acetabulum.
- b, b, Symphysis pubes.
- c, Left foramen ovale.
- d, Spine of the ilium.
- e, The uterus.
- f, Anterior fontanelle, indicated by the dots.
- g, Right sacro-iliac symphysis.
- h, Arch of the pubes.
- i, Left tuber of the ischium.

For the mechanism of this labour, see page 242.

For the mode of turning, see p. 289.

For the application of the forceps, see p. 318, and following.

EXPLANATION OF PLATE IX., OR FIFTH PRESENTATION.

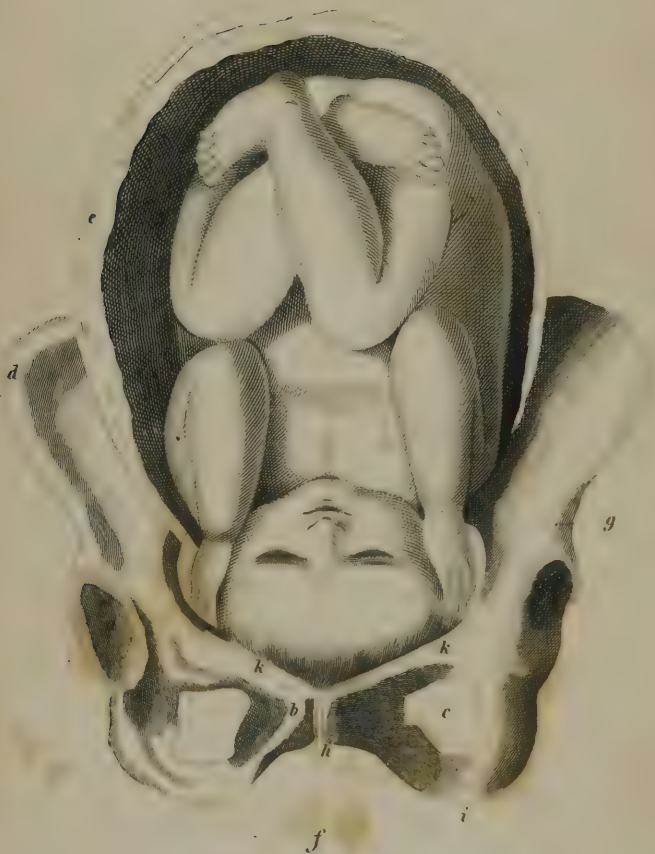
- a, Right acetabulum.
- b, Symphysis pubes.
- c, Right foramen ovale.
- d, Spine of the ilium.
- e, The uterus.
- f, Anterior fontanelle, indicated by the dots.
- g, Left sacro-iliac symphysis.
- h, Arch of the pubes.
- i, Tuber of the ischium.
- k,k, Margin of the pelvis.

For the mechanism of this labour, see page 245.

For the mode of turning, see p. 290.

For the application of the forceps, see p. 318, and following.





EXPLANATION OF PLATE X., OR SIXTH PRESENTATION.

- a, Right acetabulum.
- b,b, Symphysis pubis.
- c, Foramen ovale.
- d, Spine of the ilium.
- e, The uterus.
- f, Anterior fontanelle behind the symphysis pubes, as indicated by the dots.
- g, Left sacro-iliac symphysis.
- h, Arch of the pubes.
- i, Tuber of left ischium.

For the mechanism of this labour, see page 245.

For the mode of turning, see p. 290.

For the application of the forceps, see p. 316, and following.

EXPLANATION OF PLATE XI.

FIG. I.

This plate represents the middle-sized pessary.

From a, a, Two inches and four-tenths.

b, A central hole to permit any discharges to pass,
three-tenths of an inch in width.

c, c, An excavation for the neck of the uterus to lie in,
when applied.

FIG. II.

Is a central section of the same pessary.

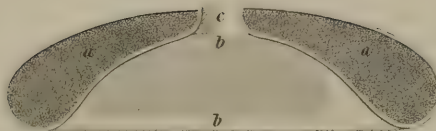
a, a, Represents the internal cavity of the pessary.

b, b, Represents the depth of the excavation of c, c, of

Fig. I. $5\frac{1}{2}$ tenths of an inch deep.

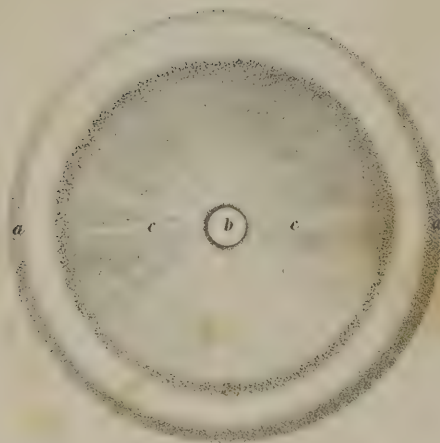
c, A section of the central hole, b, of Fig. I.

Fig. 2.



Section through the Centre.

Fig. 1.



Plan

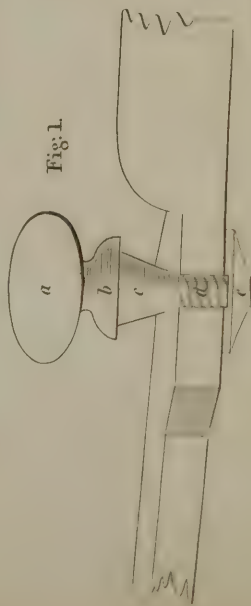
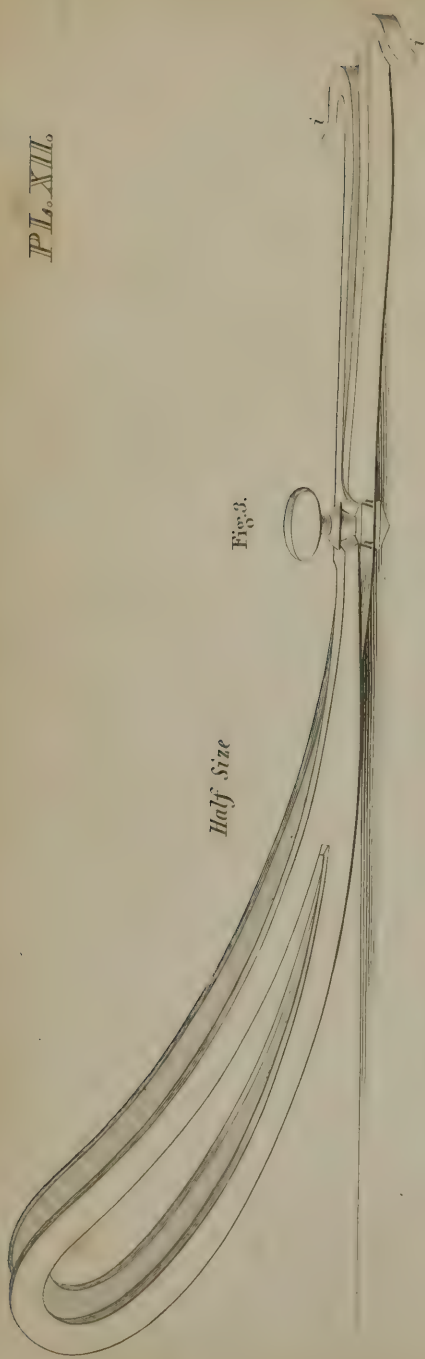
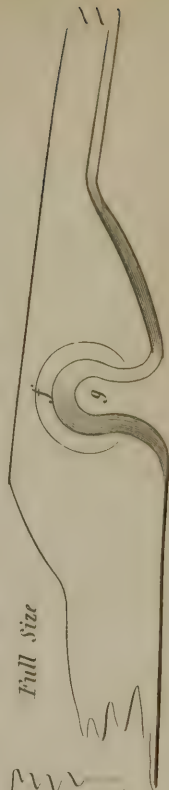


Fig. 2.



EXPLANATION OF PLATE XII.

EXPLANATION OF THE FORCEPS OF PROFESSOR SIEBOLD.

I have been favoured, by the politeness of Dr. Eberle, with a sight of professor Siebold's forceps. In their general form and size, they differ but little from the forceps of Baudelocque; they are rather longer in the clams, and a little more curved, as will be seen by examining the plates.

What I value in them is, their very ingenious mode of locking; I am persuaded this has a decided advantage in some positions of the head, and will contribute to the success of application.

FIG. I.

- a, The top of the screw which serves to unite the blades.
- b, The head of the shoulder of the screw, which is received a very small way into the counter-sink f. fig. 2.
- c, The conical body of the screw, which is received in the excavation g. fig. 2.
- d, The cut part of the screw, which passes into the female screw cut in the body of the blade of the forceps.
- e, The head, or but, against which the lower extremity of the screw is received.

FIG. II.

- f, The counter sink for receiving the shoulder b, fig. 1.
- g, The conical excavation for the reception of c, fig. 1.

FIG. III.

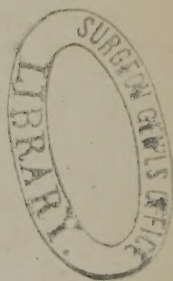
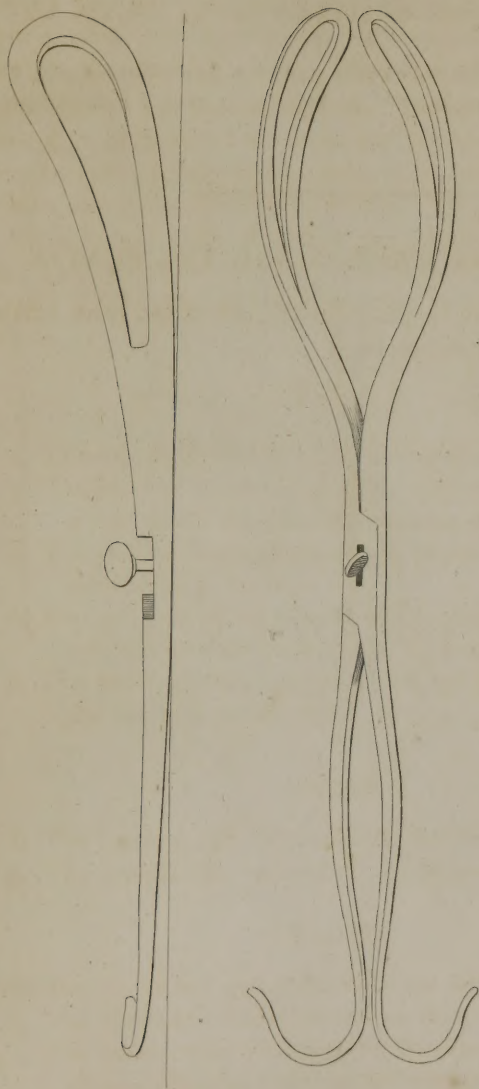
- The forceps united and reduced to one half the proper size.
- h, h, The manner in which the screw unites the blades.
 - i, i, The turned extremities of the handles, which serve like those of Baudelocque, as blunt-hooks.

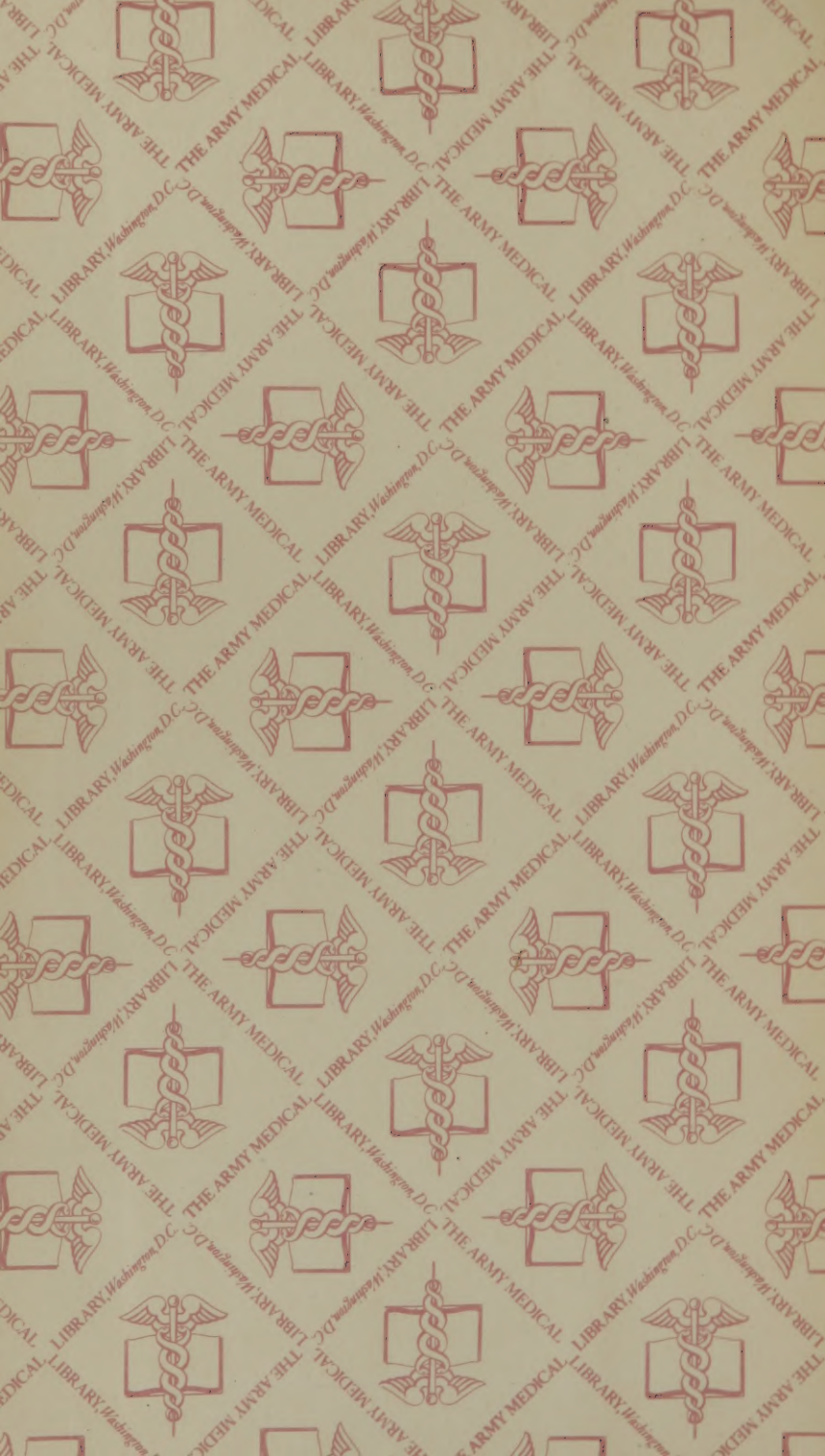
The forceps represented in Plate XIII. are reduced two-thirds from the proper size—they are called the long French forceps, or Baudelocque's forceps, though they differ a little from them, but not materially. These instruments are well made by Mr. John Rorer, Arch Street, above Fifth, from a Paris pattern.

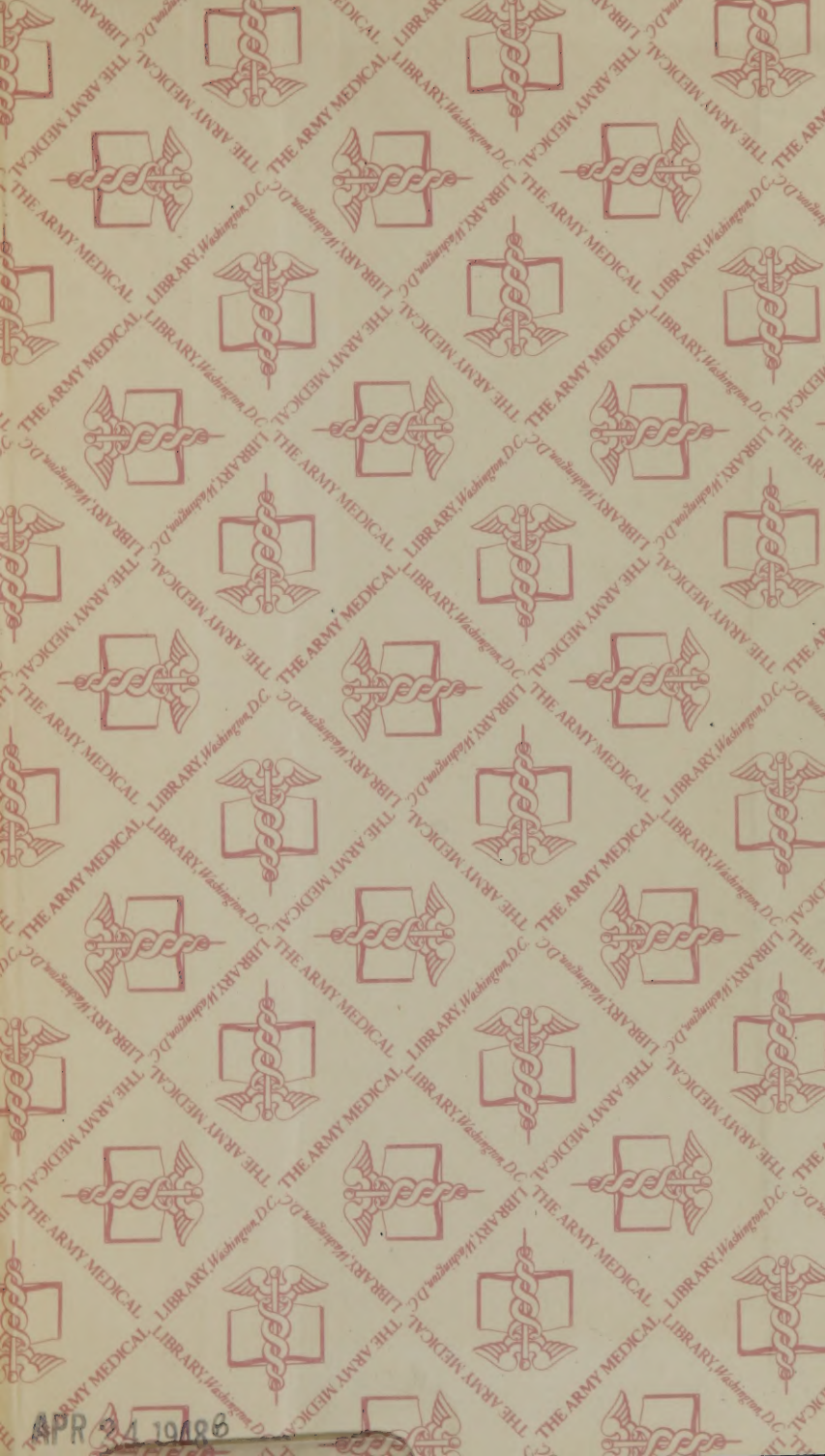
DIRECTIONS FOR PLACING THE PLATES.

The plates are to be placed at the end of the book, making them face their explanations.









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